

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2008.05.15

All

Changed title of essay from “The Science of Practical Wisdom” to “Boundless Pragmatism.”

Changed “relink” to “re-link” in all (6 occurrences).

Updated all external links.

Acknowledgements, second paragraph

Changed “to do” to “career to choose” in the ninth sentence.

Preface, second and third paragraphs

Changed “practical wisdom” to “deciding well” in all (5 occurrences).

Preface, sixth paragraph

Changed “a particular belief is false when a belief system does not predict results that correspond to reality” to “particular beliefs are true when a belief system appears to correspond to reality” in the fourth sentence.

Preface, ninth paragraph

Changed “decide how to live well” to “decide well” in the last sentence.

Preface, tenth paragraph

Changed “seekers of practical wisdom” to “people” in the second sentence.

Chapter 3, The Curious End of Believing Well, twelfth paragraph

“The first step in setting this course is to create the concept of a boundless factor of the timeless end of deciding well. A boundless factor is any factor that we cannot have in excess. The Good, the Truth, and Practical Wisdom are boundless factors of deciding well. We need the Good to avoid deprivation, which hinders us from deciding well. We need the Truth to avoid ignorance, which also hinders us from deciding well. Practical Wisdom is knowledge of how to decide well. We can never have too much of this knowledge.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The first step in setting this course is to create the concepts of bounded and boundless factors of deciding well. A bounded factor is any factor for solving temporal problems that we can have in excess. One such factor is material resources. An example of excess material resources is maintaining thirty punch card presses when three can more than meet expected demand. We do not need to maintain such a high level of production capacity. Another bounded factor is freedom. An example of excess freedom is the freedom to cripple or kill our competitors. We do not need the freedom to choose what is so clearly wrong.

“In contrast, a boundless factor is any factor of solving temporal problems that we cannot have in excess. The Good, the Truth, and Practical Wisdom are all boundless factors of the temporal end of deciding well. We need the Good to avoid deprivation, which hinders us from deciding well. We need the Truth to avoid ignorance, which also hinders us from deciding well. Practical Wisdom is knowledge of how to decide well. We can never have too much knowledge of how to decide well.”

Chapter 3, The Curious End of Believing Well, second to last paragraph

Changed “for cooperating in living well across time” to “for cooperating across time” in the second sentence.

Chapter 3, A Tale of Revolutions, last paragraph

Changed “economics” to “timeless economics” in the last sentence.

Chapter 3, Conclusion, second paragraph

Changed “intelligent life” to “ourselves” in the last sentence.

Chapter 4, Lower Trade Barriers, first paragraph

Changed “Given the timeless concept of deciding well, competition” to “Competition” in the fourth sentence.

Chapter 4, Promote Practical Science, first paragraph

Changed “the science of practical wisdom” to “practical science” in the last sentence.

Appendix B, Balanced Excellence, second paragraph

Changed “There” to “From the view of timeless science, there” in the first sentence.

Appendix D, second paragraph

Changed “have it” to “have found it” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2008.05.24

Chapter 4, *Tax Well*, last paragraph, last sentence

“Taxes on practical wisdom, which is to say taxes on profit, are never wise.”

was deleted.

Chapter 4, *Lower Trade Barriers*, first paragraph

“Free trade promotes competition. Competition promotes replacing non-knowledge resources with knowledge resources. Competition promotes practical wisdom.¹² Nothing is more useful to a person than a person who pursues Wisdom.¹³”

was changed to:

“Free trade promotes competition, which in turn promotes deciding well.¹² Nothing is more useful to a person than a person who decides well.¹³”

Chapter 4, *Promote Practical Science*

“Practical wisdom is knowledge of how to decide well. It is especially useful in wealthy economies, where the problems people face are more problems of ignorance than of material scarcity. The better we decide, the harder it is to know how to decide better. Furthermore, the better we all decide, the faster things change. The faster things change, the harder it is to know how to decide well. Policymakers ought to promote practical wisdom by promoting practical science.”

was moved to the end of the aphoristic action list and changed to:

“Deciding well creates the need for ever more knowledge of how to decide well. The better we decide, the harder it is to know how to decide better. Furthermore, the better we all decide, the faster things change. The faster things change, the harder it is to know how to decide well. Policymakers ought to promote ever more knowledge of how to decide well by promoting practical science.”

Changes in Version 2008.05.28

Preface, tenth paragraph

Changed “it” to “this concept” in the sixth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, Wealth, first paragraph

“In general, wealth is what we need to achieve our ends. From the temporal view of living well, wealth is what we need to live well based on what we currently know. Hence, the temporal concept of wealth is what we need to achieve what we currently want. From the timeless view of living well, wealth is what we need to live well based on all that can be known. Hence, the timeless concept of wealth is what we need to live well.”

was change to:

“In general, wealth is what we need to achieve our ends. From the temporal view of living well, wealth is what we need to live well based on what we currently know. From the timeless view of living well, wealth is what we need to live well based on all that can be known. Temporal wealth concerns what we currently want; timeless wealth concerns what we actually need.”

Chapter 2, Production, first paragraph

Changed “build products” to “produce” in the last sentence.

Chapter 2, Profit, first paragraph, first two sentences

“From a temporal view, profit is the actual return on a decision. From a timeless view, profit is the expected return on deciding well.”

was changed to:

“Profit is the expected return on deciding well.”

Chapter 3, The Curious End of Believing Well, fifteenth paragraph

“The last step is to recognize that we need the help of others in this endless pursuit. Further, we cannot live and work too well with others. Hence, Justice is also a boundless factor in deciding well.”

was changed to:

“The last step is to recognize that Justice is a boundless factor in deciding well. We need the help of others to pursue the boundless factors of deciding well. We cannot live and work too well with others.”

Chapter 3, The Curious End of Believing Well, second to last paragraph

Changed “both time and space” to “time and space” in the fourth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *The Ring of Truth*, sixth paragraph

Changed “novel enough” to “**just** novel enough” in the second sentence.

Chapter 3, Refining Everyday Thinking, third paragraph, last footnote

Changed “decision structure” to “decision **tree** structure” in the last sentence.

Chapter 3, Refining Everyday Thinking, last paragraph

Changed “view of **timeless science**” to “**timeless** view of **deciding well**” in the first sentence.

Chapter 3, Conclusion, last paragraph

Changed “**beliefs** that support it” to “belief system that supports **it**” in the first sentence.

Changed “**timeless science and** the belief system that supports **it**” to “the belief system that supports **timeless science**” in the last sentence.

Chapter 4, Conclusion, first paragraph

Changed “**sovereign rights stories are clear and that our** laws, **habits, customs,** and actions conform to **them**” to “**rights,** laws, and actions conform to **our beliefs about deciding well**” in the second sentence.

Changed “**revering life** well” to “**deciding** well” in the third sentence.

Chapter 4, Conclusion, last paragraph

Changed “**Governing**” to “**Further,** governing” in the first sentence.

Changed “nature” to “**natures**” in the last sentence.

Changes in Version 2008.06.02

Preface, sixth paragraph

Changed “**particular beliefs are true when a belief system appears to correspond to reality**” to “**the ground is wet because it rained**” in fourth sentence.

Preface, ninth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “the process of breaking down complicated things into simpler things” to “breaking the whole into parts” in first sentence.

Changed “breaking things down” to “breaking the whole into parts” in first sentence.

Chapter 1, Excellence in Means, tenth paragraph, last sentence

“This concept of excellence provides us with a finite problem to solve.”

was changed to:

“We only care about solving the problem at hand.”

Chapter 1, Excellence in Means, last paragraph, last sentence

“This concept of excellence opens our eyes to the possibility of replacing non-knowledge resources with knowledge resources in the pursuit of timeless ends.”

was changed to:

“In addition to solving the problem at hand, we care about replacing non-knowledge resources with knowledge resources in the pursuit of our timeless end.

“This difference in excellence in means leads underlies the difference between the temporal and timeless concepts of deciding well.”

Appendix B, *Einstein's Twin Warnings*, second paragraph, footnote

Changed “Revised Standard Edition” to “Revised Standard Version.”

Changes in Version 2008.06.10

Entire document

Changed “practical wisdom” to “wisdom” in all (19 occurrences).

Changed “practical science” to “decision science” in all (5 occurrences).

Matched HTML and Word documents to find and correct discrepancies. Fixed errors.

Preface, fifth and sixth paragraphs

“Russell’s definition of philosophy, which calls to mind the work of August Comte, is consistent with, if not based upon, the modern habit of confusing theology, religion,

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

and faith. From this modern view, these three concepts mean the same thing, which is the zealous and extra-reasonable pursuit of knowing the divine. In contrast, I contend that in our natural pursuit of living well it is useful to distinguish between knowledge of the divine, which I call theology; the pursuit of linking or re-linking with something infinitely greater than ourselves, which I call religion; and certainty beyond reason, which I call faith. We can easily imagine using each of these three concepts in conflict with the other two. We can imagine theists without religious zeal, without faith in the existence of the divine, or with faith in the chance to win a trip to Las Vegas. We can also imagine atheists with faith in the non-existence of the divine or atheists pursuing justice with religious zeal. We ought to distinguish between theology, religion, and faith.

“The modern confusion of theology, religion, and faith hides a fatal flaw in Russell’s belief system as expressed in this quote. What Russell calls science can never be completely free from what he calls dogma. This is because all belief systems call on us to put our faith in beliefs that are not certain. We can never be completely sure that all crows are black (the induction problem), that all bachelors are unmarried (the analytic versus synthetic truth problem), or that the ground is wet because it rained (the reductionism problem). As we shall see, a prime example of scientific dogma is the belief that excellence in means is efficiency.”

were changed to:

“Russell’s definition of our search for knowledge, which calls to mind the work of August Comte, is fatally flawed. What Russell calls science can never be completely free of what he calls dogma. This is because all belief systems call on us to put our faith in beliefs that are not certain. We can never be completely sure that all crows are black (the induction problem), that all bachelors are unmarried (the analytic versus synthetic truth problem), or that the ground is wet because it rained (the reductionism problem). As we shall see, a prime example of scientific dogma is the belief that excellence in means is efficiency.”

Chapter 1, Two Views of Deciding Well

Moved section to behind the **Setting Words Aright** section. Inserted the following paragraphs at the beginning:

“Useful worldviews are views of the world that help us achieve our ends (goals). We may group useful worldviews into two types based on whether their ends are temporal or timeless (normative).⁴ Temporal ends are goals that concern events. Winning a basketball game is a temporal end. Timeless ends are goals that concern processes. Playing basketball well is a timeless end. The difference between a temporal end and a timeless end is the difference between arriving at a destination and heading in a direction.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We base useful views of the world on the concepts that define ends and *excellence in means*. From a temporal view, we base excellence in means solely on what we know. Because we do not care about what happens after we solve the temporal problem at hand, we do not care about what we might learn by doing. From a timeless view, we base excellence in means both on what we know and on what we may learn. Because we care about what happens after we solve the problem at hand, we care about what we might learn by doing. We care about replacing non-knowledge resources with knowledge resources in the pursuit of our timeless end.

“We can see this difference in the temporal and timeless views of deciding well. From the temporal view of deciding well, excellence in means is simply excellence in solving temporal problems. Modern economists call excellence in solving temporal problems *efficiency*. Deciding well calls for efficiency. From the timeless view of deciding well, excellence in means is not only excellence in solving temporal problems but also of excellence in choosing temporal problems to solve. Decision scientists call excellence in solving temporal problems *efficiency* and excellence in choosing temporal problems to solve *effectiveness*.⁵ Deciding well calls for both efficiency and effectiveness.”

“⁴ Adler, Mortimer, *Ten Philosophical Mistakes*, (New York, Macmillan, 1985), 137.”

“⁵ The distinction between managerial efficiency and effectiveness depends on the scale of the temporal problem. What is a matter of efficiency at one problem scale is a matter of effectiveness at another. Imagine a hierarchical organization that defines the scale of temporal problems in terms of each member’s freedom to decide. What would be a matter of efficiency at a high level in the organization would be a matter of effectiveness at a lower level. *Failure to define a temporal problem scale can cause great confusion.*”

Shifted footnote labels to match new order of footnotes.

Chapter 1, Excellence in Means, title

Changed title to “The EOQ/RTS Example.”

Chapter 1, The EOQ/RTS Example, first paragraph

“We base useful views of the world on the concepts that define *ends* and *excellence in means*. The modern economic concept of excellence in means — efficiency — helps us to achieve our ends using the least valuable scarce resources. It also tends to blind us to better ends. We can see this flaw in the economic order quantity (EOQ) model.”

was deleted.

Chapter 1, The EOQ/RTS Example, new first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “new model cars” to “units of our new model electric car” in the first sentence.

Changed “stamping machine” to “machine” in the second sentence.

Inserted the following sentence before the first sentence: “We can see the difference between the temporal and timeless views of deciding well in two models for helping us to decide how often to set up machine tools.”

Chapter 1, The EOQ/RTS Example, new third paragraph

Changed “simple model” to “timeless model” in the second sentence.

Chapter 1, The EOQ/RTS Example, last three paragraphs

“The major difference between the EOQ and RTS models concerns their ends. The EOQ model has a temporal end. In contrast, the RTS model has a timeless (normative) end.⁶ Temporal ends are goals that concern events. Winning a basketball game is a temporal end. Timeless ends are goals that concern processes. Playing basketball well is a timeless end. The difference between a temporal end and a timeless end is the difference between arriving at a destination and heading in a direction.

“The EOQ model aims at the temporal end of producing what we currently need to produce well. From this temporal view, we base excellence in means on solely on what we currently know. Because we do not care about what happens in the future, we do not care about what we might learn by doing. We only care about solving the problem at hand.

“In contrast, the RTS model aims at the timeless end of producing well. From this timeless view, we base excellence in means on both what we know and what we may learn. We divide the concept of *excellence in means* into two parts. The first is *effectiveness*, which we define as excellence in choosing temporal problems to solve. The second is *efficiency*, which we define as excellence in solving temporal problems. This pair of concepts helps us to find and solve temporal problems well.⁷ Because we care about what happens in the future, we care about what we might learn by doing. In addition to solving the problem at hand, we care about replacing non-knowledge resources with knowledge resources in the pursuit of our timeless end.”

⁶ Adler, Mortimer, *Ten Philosophical Mistakes*, (New York, Macmillan, 1985), 137.”

⁷ The distinction between managerial efficiency and effectiveness depends on the scale of the temporal problem. What is a matter of efficiency at one problem scale is a matter of effectiveness at another. Imagine a hierarchical organization that defines the scale of temporal problems in terms of each member’s freedom to decide. What would be a matter of efficiency at a high level in the organization would be a matter of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

effectiveness at a lower level. *Failure to define a temporal problem scale can cause great confusion.*”

were changed to:

“In summary, the EOQ model aims at the temporal end of producing what we currently need to produce well. From this temporal view, we base excellence in means on solely on what we currently know. Because we do not care about what happens after we solve the temporal problem at hand, we do not care about what we might learn by doing. In contrast, the RTS model aims at the timeless end of producing well. From this timeless view, we base excellence in means on both what we currently know and what we may learn. Because we care about what happens after we solve the problem at hand, we care about what we might learn by doing. We care about replacing non-knowledge resources with knowledge resources in the pursuit of the timeless end of producing well.”

Chapter 2, Wisdom, first paragraph

Changed “Aristotle tells us that the timeless end” to “The timeless end” in the first sentence.

Changed “manipulate concepts” to “think” in the second sentence.

Chapter 2, Trust, second paragraph

Changed “knowledge economies” to “the production and trade of knowledge” in the first sentence.

Chapter 2, Trust, last paragraph

Changed “economic ills” to “trading ills” in the last sentence.

Chapter 3, The Curious End of Believing Well, sixteenth paragraph

Changed “ignorance about Justice” to “ignorance” in the first sentence.

Chapter 3, Refining Everyday Thinking, seventh paragraph

“This timeless concept of science as the process of refining everyday thinking combines Einstein’s insight into the everyday nature of science with the RTS/EOQ insight into deciding well. The universal research program of, by, and for intelligent life consists of both subordinate research programs and theories. Subordinate research programs help us to find problems to solve. Theories help us to solve given problems. For helping us to find problems to solve, it takes a research program to beat a research program. For helping us to solve given problems, it takes a theory to beat a theory. In

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

general, it takes an intellectual tool to beat an intellectual tool. The RTS research program beats the EOQ theory at helping us to find problems to solve.”

was deleted.

Chapter 3, Refining Everyday Thinking, new seventh paragraph

Changed “new” to “timeless” in the first sentence.

Chapter 3, Refining Everyday Thinking, new eighth paragraph

Changed “the affairs of intelligent life are separate and distinct” to “humans are not a part of” in the last sentence.

Chapter 3, Refining Everyday Thinking, new ninth paragraph

Changed “refine” to “would refine” in the second sentence (3 occurrences).

Changed “intellectual” to “intelligent” in the last sentence.

Chapter 3, Refining Everyday Thinking, new tenth paragraph

Changed “it would not imply that humans are separate and distinct from other intelligent life” to “the arts would include what non-human forms of intelligent life create” in the last sentence.

Chapter 3, Refining [Practical] Wisdom, title

Changed title to “Refining Deciding Well.”

Chapter 3, Refining Deciding Well, first paragraph

Changed “stories” to “stories (narratives/theories)” in the first sentence.

Chapter 3, Refining Practical Stories

Changed title to “Refining Stories.”

Changed “happens in economies” to “happens” in all (3 occurrences).

Changed “will happen in economies” to “will happen” in all (4 occurrences).

Chapter 3, Computer Models, last paragraph

Changed “test this knowledge against experience” to “learn from the experience” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *A Crude Look at the Whole*, last paragraph

Changed “economists” to “**modern** economists” in the first sentence.

Chapter 3, *A Tale of Two Revolutions*, last paragraph

Changed “**economic** logic” to “logic” in the third sentence.

Changed “**to define** timeless **economics to be the premier decision** science” to “a timeless science **of deciding well**” in the last sentence.

Chapter 3, Conclusion, second paragraph

Changed “**theories**” to “**stories**” in the fifth sentence (2 occurrences).

Chapter 4, *The Explicit Experiment*, fourth paragraph

Changed “in his dissenting opinion **in a decision that upheld a law limiting free speech**” to “in **one of** his **most famous** dissenting opinions” in the third sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, last paragraph

Changed “**economic** logic” to “logic” in the third sentence.

Chapter 4, Economic Policy, title

Changed title to “**Good Policies.**”

Chapter 4, Control the Money Supply Passively, first paragraph, footnote, first three sentences

“**Monetary policies change prices. Changing prices changes our perceptions of problems. Students of Austrian economics will recognize this power of monetary authorities from the Austrian malinvestment theory of inflationary booms.**”

was deleted.

Chapter 4, Promote Decision Science, first paragraph

Changed “**decision** science” to “**the timeless** science **of deciding well**” in the last sentence.

Appendix B, *Practical Benefits of Magical Mysticism*, title and first paragraph

Changed “**practical** benefit” to “**worldly** benefit” in all (3 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix B, *Worldly Benefits of Magical Mysticism*, second paragraph

Changed “**practical** benefit” to “benefit” in the second sentence.

Changes in Version 2008.06.10

Preface, third paragraph,

“For people who believe that science is definite knowledge of what is, the concept of a science of deciding well is nonsense. If we cannot define deciding well, which includes defining our ultimate ends, there can be no science of deciding well. On the other hand, if science is the pursuit of definite knowledge of what is, then the issue becomes whether it is possible to define a means of defining deciding well.”

was changed to:

“My wish for a science of deciding well raises the issue of the proper scope of science. Should we base science on what we currently know or on what we wish to know? If we base science on what we currently know, the concept of a science of deciding well is nonsense. If we cannot define deciding well, which includes defining our ultimate ends, there can be no science of deciding well. On the other hand, if we base science on what we wish to know, there can be a science of deciding well.”

Preface, fourth paragraph

“The concept of science as the pursuit of definite knowledge conflicts with the modern belief that science is separate and distinct from religion.”

was changed to:

“The belief that science should be based on what we wish to know conflicts with the modern belief that science concerns definite knowledge.”

Changed “belief” to “modern belief” in the second sentence.

Preface, sixth paragraph, first two sentences

“Russell’s definition of our search for knowledge, which calls to mind the work of August Comte, is fatally flawed. What Russell calls science can never be completely free of what he calls dogma.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Russell’s **beliefs about** our search for knowledge, which call to mind the work of August Comte, **are** fatally flawed. **Chief among these flaws is the belief that** what Russell calls science can be free of what he calls dogma.”

Chapter 1, Two Views of Deciding Well, first paragraph

Switched order of the fourth (“Winning a basketball game is a temporal end.”) and fifth (“Timeless ends are goals that concern processes.”) sentences.

Preface, eighth paragraph

Changed “**should**” to “**must**” in the fourth sentence.

Chapter 3, The Curious End of Believing Well, sixth paragraph, footnote

Changed “modern **thinkers**” to “**many** modern **readers**” in the first sentence.

Added the following sentences:

“**In our natural pursuit of living well it is useful to distinguish between theology (knowledge of the divine); religion (the pursuit of linking or re-linking with something infinitely greater than ourselves); and faith (certainty beyond reason). We can easily imagine using each of these three concepts in conflict with the other two. We can imagine theists without religious zeal, without faith in the existence of the divine, or with faith in the chance to win a trip to Las Vegas. We can also imagine atheists with faith in the non-existence of the divine or atheists pursuing justice with religious zeal. We ought to distinguish between theology, religion, and faith.**”

Chapter 3, The Curious End of Believing Well, tenth paragraph, first footnote

“**Note the similarity of Plato’s ultimate end of believing well to the Vedanta school of Indian philosophy, which culminates in the individual soul (*Atma*) re-linking with the soul of the universe (*Brahman*), and to Albert Einstein’s desire to understand God’s thoughts.**”

was changed to:

“**Again, this concept of linking or re-linking is agnostic. It includes an atheistic pursuit of the Truth. It also includes Albert Einstein’s dream of understanding God’s thoughts and the Vedanta school of Indian thought’s goal of the individual soul (*Atma*) merging with the universal soul (*Brahman*).**”

Chapter 3, The Curious End of Believing Well, seventh paragraph

Changed “From the timeless view **of believing well**” to “From the timeless view” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, The Curious End of Believing Well, eighth paragraph

Changed “**temporal** problem” to “problem” in the third sentence.

Chapter 3, The Curious End of Believing Well, thirteenth paragraph

Merged with twelfth paragraph.

Chapter 3, Refining Everyday Thinking, ninth paragraph

Changed “non-human forms” to “**as yet undiscovered** non-human forms” in the last sentence.

Changes in Version 2008.06.14

Acknowledgments, second paragraph

Changed “**produce**” to “**write**” in the second to last sentence.

Preface, fifth paragraph

Changed “**Chief** among these **flaws**” to “**Foremost** among these” in the second sentence.

Changed “**This is because all**” to “**All**” and “**call on us to put our faith in**” to “**include**” in the third sentence.

Changed “**the ground is wet because it rained**” to “**excellence in means is efficiency**” in the fourth sentence.

The last sentence, “**As we shall see, a prime example of scientific dogma is the belief that excellence in means is efficiency.**”, was deleted.

Chapter 1, Two Views of Deciding Well, second paragraph

“We base useful views of the world on the concepts that define ends and *excellence in means*. From a temporal view, we base excellence in means **solely** on what we know. **Because we do not care about what happens after we solve the temporal problem at hand, we do not care about what we might learn by doing** that is useful for more than solving the problem at hand. From a timeless view, we base excellence in means **both** on what we know and on what we may learn. **Because we care about what happens after we solve the problem at hand, we care about what we might learn by doing.** We care about replacing non-knowledge resources with knowledge resources in the pursuit of our timeless end.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“We base useful views of the world on the concepts that define ends and *excellence in means*. From a temporal view, we base excellence in means on what we know **and what we might learn that is useful for solving the problem at hand**. We do not care about what we **may** learn that is useful for more than solving the problem at hand. From a timeless view, we base excellence in means on what we know and on what we may learn that is useful in pursuing our timeless end. We care about replacing non-knowledge resources with knowledge resources in the pursuit of our timeless end.”

Chapter 1, Two Views of Deciding Well, third paragraph

Changed “**Modern economists** call” to “**We commonly** call” in the third sentence.

Changed “**efficiency**” to “**us to decide efficiently**” in the fourth sentence.

Changed “**Decision scientists** call *excellence in solving temporal problems efficiency and*” to “**We commonly** call” in the sixth sentence.

Changed “**both efficiency and effectiveness**” to “**us to decide both efficiently and effectively**” in the last sentence.

Moved the footnote from the sixth sentence to the last sentence.

Changed “**managerial** efficiency and effectiveness” to “efficiency and effectiveness” in the first sentence of the footnote.

Chapter 1, Two Views of Deciding Well, fourth paragraph, last sentence

“**Further, our actions reveal our preferences, which is to say that to decide well is to decide perfectly.**”

was changed to:

“**To decide well is to decide perfectly. In modern economic terms, our actions reveal our preferences.**”

Chapter 1, The EOQ/RTS Example, last paragraph

“In summary, the EOQ model aims at the temporal end of producing what we currently need to produce well. From this temporal view, we base excellence in means on solely on what we currently know. **Because we do not care about what happens after we solve the temporal problem at hand**, we do not care about what we might learn by doing. In contrast, the RTS model aims at the timeless end of producing well. From this timeless view, we base excellence in means on both what we currently know and what we may learn. **Because we care about what happens after we solve the**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

problem at hand, we care about what we might learn by doing. We care about replacing non-knowledge resources with knowledge resources in the pursuit of the timeless end of producing well.”

was changed to:

“In summary, the EOQ model aims at the temporal end of producing what we currently need to produce well. From this temporal view, we base excellence in means on solely on what we currently know. We do not care about what we might learn by doing. In contrast, the RTS model aims at the timeless end of producing well. From this timeless view, we base excellence in means on both what we currently know and what we may learn by doing. We care about replacing non-knowledge resources with knowledge resources in the pursuit of the timeless end of producing well.”

Chapter 2, Introduction, second paragraph

Changed “In contrast, from the timeless view” to “From the timeless view” in the third sentence.

Changed “to help us to solve” to “to help us solve” in the third sentence.

Split the paragraph into two after the second sentence.

Chapter 2, Introduction, third paragraph

Changed “to help us to solve” to “to help us solve” in the first sentence.

Chapter 3, The Curious End of Believing Well, fourth paragraph

“Kuhn saw testing beliefs within a given system of concepts to be normal science and testing beliefs across belief systems to be revolutionary science.”

was changed to:

“Kuhn distinguished between testing beliefs within and across systems of concepts. He called the first ‘normal’ and the second ‘revolutionary.’”

Chapter 3, The Curious End of Believing Well, seventh paragraph

Changed “considering” to “us to consider” in the second sentence.

Chapter 3, The Ring of Truth, first paragraph

“Pursuing the timeless end of believing well calls for pursuing all boundless factors of deciding well. This is a blessing, not a burden. It provides us with a more certain way of testing problems to solve before we attempt to solve them. Only if a problem is

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

consistent with our **current** beliefs about **all** boundless factors can **we** be reasonably certain **that the beliefs supporting our choice have the ring of Truth. Only then can we say that we** have found a beautiful problem to solve.”

was changed to:

“**The** timeless end of believing well calls for **us to pursue** all **of the** boundless factors of deciding well. This is a blessing, not a burden. It provides us with a more certain way of testing problems to solve before we attempt to solve them. **If** a problem is consistent with **all of** our beliefs about **the** boundless factors, **then it rings true. We** can be reasonably certain that we have found a beautiful problem to solve.”

Appendix B, Conclusion, first paragraph

Changed “results contain” to “**the** results contain” in the sixth sentence.

Appendix C, *Machine Tools*, third paragraph

Changed “approach to automat**ing**” to “approach to automat**ion**” in the second sentence.

Appendix C, *Machine Tools*, fourth paragraph

Changed “approach to automat**ing**” to “approach to automat**ion**” in the first sentence.

Changes in Version 2008.06.21

Preface, fifth paragraph

Changed “these” to “**these** mistakes” in the second sentence.

Changed “**certain**” to “**definite**” in the third sentence.

Changed “**sure**” to “**certain**” in the fourth sentence.

Preface, end

Added the one word paragraph: “**Enjoy.**”

Chapter 3, Refining Deciding Well, first paragraph

Deleted “(**narratives/theories**)” from the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2008.06.27

Chapter 3, The Curious End of Believing Well, fourth paragraph

“Twentieth-century philosopher of science Thomas Kuhn provides us with concepts for describing the two basic ways in which we respond to unexpected events. Kuhn distinguished between testing beliefs *within* and *across* systems of concepts. He called the first ‘normal’ and the second ‘revolutionary.’² Following Kuhn’s lead, an unexpected event that leads us to change our beliefs within a given system of concepts is ordinary and an unexpected event that leads us to change our system of concepts is extraordinary. The decision to discard the belief that all swans are white rather than to create a new genus was ordinary. The original decision to create the new genus of *chenopis* was (a bit) extraordinary.”

“² Kuhn, Thomas, *The Structure of Scientific Revolutions*, (Chicago: University of Chicago Press, 1962), chapter 10.”

was deleted.

Chapter 3, The Curious End of Believing Well, new ninth paragraph

“His approach is rational **and ordinary**, not religious **and extraordinary**.”

was changed to:

“His approach is rational, not religious.⁵”

“⁵ In Kuhnsian terms, Aristotle’s approach is normal science, not revolutionary science. See Kuhn, Thomas, *The Structure of Scientific Revolutions*, (Chicago: University of Chicago Press, 1962), chapter 10.”

Changes in Version 2008.06.28

Chapter 1, Setting Words Aright, second paragraph, first sentence

“**Concepts are a type of knowledge resource.**”

was moved to the end of the first paragraph.

Chapter 1, Two Views of Deciding Well, third paragraph

Changed “**simply** excellence” to “excellence” in the second sentence.

Chapter 1, Two Views of Deciding Well, seventh paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “to identify” to “identify” in the second sentence.

Changed “the endless pursuit of deciding well” to “planning terms” in the last sentence.

Chapter 2, Introduction, first paragraph

Changed “this concept” to “the timeless concept of deciding well” in the second sentence.

Chapter 3, The Elephant in the Room, last paragraph,

Changed “to find” to “find” in the second sentence.

Chapter 3, Refining Everyday Thinking, seventh paragraph

Changed “this group” to “the true sciences” and “humans” to “the beliefs and actions of intelligent life” in the last sentence.

Chapter 3, Refining Deciding Well, last paragraph, last sentence, footnote

Changed “prevailing” to “modern” in the second sentence.

Chapter 3, *Refining Stories*, fourth paragraph

Changed “what we need to live well” to “what we need to live well (the Good)” in the second sentence.

Merged the third footnote into the second.

Chapter 3, *Refining Stories*, fifth and sixth paragraphs

“We also ought to weed out all stories that fall short of the timeless end of Justice. Foremost of these are stories that concern efficiency. We pursue Justice by deciding well. As we saw in the EOQ/RTS example, deciding well is not the same thing as acting efficiently. We can see this difference in the modern economic general equilibrium model, which describes what each factor of production receives under conditions of perfect efficiency. What is missing from this model is what we owe to the people who created the knowledge that we use at no charge. As previously argued, the debts that we owe to these people we ought to pay to others by deciding well. Deciding well calls for us to learn by doing, not to act efficiently.

“Similarly, we ought to weed out all stories that aim at sustaining a good society. Consider what our lives would be like today if all previous generations of humans aspired to nothing more than to sustain a good society. Again, deciding well calls for us to learn by doing. It calls for us to leave the caves of our ancestors.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“We also ought to weed out all stories that fall short of the timeless end of Justice. Foremost of these are stories that concern efficiency. We pursue Justice by deciding well. As we saw in the EOQ/RTS example, deciding well is not the same thing as acting efficiently. **For example**, we ought to weed out all stories that aim at sustaining a good society. Consider what our lives would be like today if all previous generations of humans aspired to nothing more than to sustain a good society. **Deciding well** calls for us to learn by doing. It calls for us to leave the caves of our ancestors.”

act **effectively as well as** efficiently” in the last sentence.

Merged the paragraph with the fifth paragraph.

Chapter 3, *A Tale of Revolutions*, last paragraph, last sentence, footnote

Changed “**While**” to “**Although**” in the second sentence.

Appendix B, Conclusion, first paragraph,

Changed “**to choose**” to “choose” in the first sentence.

Changes in Version 2008.06.30

Preface, sixth paragraph, last sentence

“**Because one of the boundless factors of deciding well is knowledge of the unchanging elements and relations (ideal forms) that underlie all sensations, the oxymoronic *idealistic pragmatism* works as well.**”

was deleted.

Chapter 3, *The Curious End of Believing Well*, last paragraph

Deleted “**(ideal forms)**” from the last sentence.

Chapter 3, *The Elephant in the Room*, last paragraph

Changed “**transcendental** values” to “transcendent values” in the last sentence.

Chapter 3, *A Tale of Revolutions*, last paragraph, last sentence, footnote

“³⁰ **There will likely be some people who believe that this call to change the conceptual framework of economics confirms Karl Marx’s belief that the predominant mode of**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

production determines the prevailing conceptual framework. Although there is some truth in this belief, it tells less than half the story. As anyone who tried to explain the Toyota system to someone lacking a learning worldview would know, at least some of the new conceptual framework has to be in place before a new mode of production can become dominant. In the language of complex adaptive systems, a mode of production and the concepts that best describe it co-evolve.”

was deleted.

Changes in Version 2008.07.04

Preface, second paragraph

Changed “**explain how to live**” to “**guide our actions**” in the seventh sentence.

Preface, third paragraph

Changed “**wish**” to “**want**” in the second and last sentences.

Preface, fourth paragraph

Changed “**wish**” to “**want**” in the first sentence.

Chapter 1, Two Views of Deciding Well, first paragraph

Italicized “**temporal**” and “**timeless**” in the second sentence.

Deleted “**(normative)**” from the second sentence.

Changed the footnote from:

“**Adler, Mortimer, *Ten Philosophical Mistakes*, (New York, Macmillan, 1985), 137.**”

to:

“**In his book, *Ten Philosophical Mistakes*, Mortimer Adler distinguishes between temporal and normative ends. See Adler, Mortimer, *Ten Philosophical Mistakes*, (New York, Macmillan, 1985), 137. Because all ends are inherently normative, using the philosophical term ‘normative’ in this context is potentially confusing. Replacing it with ‘timeless’ avoids this confusion.**”

Chapter 1, Two Views of Deciding Well, last paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Note that the distinction between the temporal and timeless views of deciding well concerns the distinction between efficiency and the combination of efficiency and effectiveness. Unlike the distinction between efficiency and effectiveness, this distinction is independent of our choice of a temporal problem to solve. Just as we can never choose the largest number, we can never choose a temporal problem so large that it eliminates the distinction between the temporal and timeless views of deciding well.”

was deleted.

Chapter 1, The EOQ/RTS Example, seventh paragraph, last sentence, footnote

“This lesson about the great value of learning-by-doing deserves a second example. In 1991, the Japanese began broadcasting analog high-definition television. The same year, the Americans chose digital over analog for their standard. Although digital was much more costly, the Americans saw that the cost of digital was falling much faster. By considering what they were likely to learn, the Americans found a better problem to solve. For more on the subject of learning, see Appendix A.”

was deleted.

Chapter 1, end

Added a new section titled “A Timeless View”:

“The Toyota strategy calls for all team members to improve their work continually. This in turn calls for good people, humane conditions, cooperation, and a timeless view. A timeless view is confusing to people who are locked into a temporal view. The following *kaizen* slogans highlight this problem. Each is obvious from a timeless view, yet paradoxical from a temporal one:

Good quality is less expensive than poor quality. When we consider good quality and poor quality per se, good quality is less expensive. This is because good quality avoids rework, returns, low employee morale, and customer dissatisfaction. It is only when we consider the costs of producing good quality versus poor quality, *given a fixed stock of useful knowledge*, that good quality is more costly. Once we have learned how to produce good quality for the same cost, doing so is less costly.

Producing in small batches is less expensive than producing in large ones. Making things in small batches lowers capital costs and increases flexibility. Once we have learned how to make things in small batches for the same cost, doing so is less costly.

Smaller, lighter, narrower, and shorter are better than bigger, heavier, wider, and taller. Again, once we have learned how to make products using fewer material resources for the same cost, doing so is less costly.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Finding a problem is like finding a diamond. Without a problem to solve there can be no improvement.

“In Edwin Abbott’s novel *Flatland*, characters perform apparent miracles by breaking through dimensional boundaries. Flatlanders who have left their two-dimensional world find it impossible to convey what they did to their fellows who believe that the terms ‘up’ and ‘north’ refer to the same concept.⁷ Similarly, Toyota has performed apparent miracles by quickly pushing back its “efficiency frontiers.” It has thrived by learning well. Toyota team members find it impossible to convey what they do to people who believe the terms ‘efficiency’ and ‘excellence in means’ refer to the same concept. Like most residents of Flatland, these residents of our age fail to grasp a larger truth. To grasp this larger truth, they need a timeless view.”

“⁷ Abbott, Edwin A, *Flatland: A Romance of Many Dimensions*, (Oxford: Basil Blackwell, 1884), chapter 21, reprinted in Project Gutenberg, <<http://www.gutenberg.org/catalog>>, (4 July 2008).”

Chapter 2, Trade, first paragraph, last sentence, footnote, last sentence

“In rapidly changing sectors in which transportation and communication costs are no longer major factors, the sector itself takes the leading role.”

was deleted.

Chapter 2, *Three Mistakes*, first paragraph, last sentence

“This **mistake caused many** Western experts to see the Toyota system as a set of techniques rather than as a means of creating techniques that involved paying workers not only for their skilled hands but also for their trained minds.”

was changed to:

“This **blindness led John Maynard Keynes to see “sticky wages”** (the slowness of the price of labor to fall in response to a fall in the demand for labor) as a problem to work around rather than a problem to solve. It also led most Western experts to see the Toyota system as a set of techniques rather than as a means of creating techniques that involved paying workers not only for their skilled hands but also for their trained minds.”

Chapter 2, *Three Mistakes*, last paragraph

Changed “**wish**” to “**want**” in the fifth sentence.

Chapter 3, *Recursive Failures*, last paragraph, last sentence, footnote

Replaced the footnote:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“²⁴ A good example of pretending to be certain is the modern economic national accounting system, which uses a temporal rather than a timeless concept of wealth. For more on this, see Appendix D.”

with the following paragraphs from Appendix D:

“A good example of pretending to be certain is the modern economic national accounting system, which uses a temporal rather than a timeless concept of wealth. Imagine a pill that makes people decide better. Releasing this product would change how people decide to live. Some parts of the economy would shrink and other parts would grow. Resources would flow from the shrinking parts to the growing ones. The immediate effect would be a fall in aggregate production and a rise in unemployment. Modern economic science would portray one of the greatest advances in human history as a disaster.

“The problem here is one of how to measure what we need to live well, which calls for knowing the Truth about the Good. Plato only aspired to such knowledge. Only a fool would claim to have found it. From a technical view, the problem of measuring services is universal and the problem of measuring quality is impossibly hard.

“An accounting truism holds that accounting systems promote what we measure at the expense of what we do not measure. Soviet central planners learned this the hard way. When they set screw factory quotas by the quantity of screws produced, factory managers produced too few big screws and too many small screws. When they set quotas by the weight of screws produced, managers produced too many big screws and too few small screws. The solution to our national income accounting problems will be similar to the solution to the Soviet accounting problems. We will replace our decision-making system with one that depends less on problematic measurements. The question is whether we will wait for a major catastrophe before making this change.”

Chapter 3, *A Tale of Revolutions*, last paragraph, last sentence, footnote

“²⁹ There will likely be some people who believe that this call to change the conceptual framework of economics confirms Karl Marx’s belief that the predominant mode of production determines the prevailing conceptual framework. Although there is some truth in this belief, it tells less than half the story. At least some of the new conceptual framework has to be in place before a new mode of production can become dominant. In the language of complex adaptive systems, a mode of production and the concepts that best describe it co-evolve.”

was returned. (Deleted 6/30/2008).

Chapter 3, Conclusion last paragraph, last sentence

“The next section explains how we may test the belief system that supports timeless science.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“The next section explains how we may test the belief system that supports timeless science **as a whole**.²⁹”

²⁹ This section contains an argument for a holistic approach to science based what we need to know in order to decide well. Economists would call this working the demand side of science. Readers interested in an argument for a holistic approach to science based on what economists would call the supply side, which is the normal concern of philosophers of science, will find one in W. V. O. Quine’s “Two Dogmas of Empiricism.” Quine’s argument against reductionism is subject to itself. This bit of recursion creates an open-ended problem that we cannot solve. In the words of Dwight Eisenhower, which call to mind the incompleteness theorems of Kurt Gödel, “If a problem cannot be solved, enlarge it.” We need to enlarge the problem of refining our belief systems to the limits of imagination. This calls for a demand side view of science.”

Appendix A

was deleted. References to appendices B and C were updated.

Appendix D

was deleted.

Changes in Version 2008.07.18

Acknowledgments, fourth paragraph

“In the early 1980s, I was head of information systems and human resources at Star Forms, a closely held business forms **manufacturing company**. I believed that **our firm** owed **its** success to our ability to act and learn faster than others. A lecture by Taiichi Ohno **in 1984** convinced me that we had much to learn about learning.”

were changed to:

“In the early 1980s, I was head of information systems and human resources at Star Forms, a closely-held business forms **printer**. **Our firm had grown thirty-fold in a dozen years while throwing off cash**. I believed that **we** owed **our** success to our ability to act and learn faster than others. A lecture by Taiichi Ohno convinced me that we had much to learn about learning.”

Preface, second paragraph, last two sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“**Instead, I ought to have wished for a method of weeding out members of the set of theories that we use to guide our actions.** Rather than a theory of moral philosophy, I ought to have wished for a *science* of deciding well.”

were changed to:

“Rather than a theory of moral philosophy, I ought to have wished for a *science* of deciding well. **I ought to have wished for a method of weeding out members of the set of theories that we use to guide our actions.**”

Preface, fifth paragraph

Changed “**completely** certain” to “certain” and “**excellence in means is efficiency**” to “**the whole is nothing more than the sum of its parts**” in the fourth sentence.

Preface, seventh paragraph

Changed “**failing to take the infinitely long view**” to “**doing so**” in the last sentence.

(While accurate, this is too jarring a statement for the preface.)

Chapter 1, Setting Words Aright

Moved last paragraph in first paragraph back to the second paragraph. Italicized first occurrence of “knowledge resources” in the second paragraph.

Chapter 1, Two Views of Deciding Well, fourth paragraph

Changed “**To** decide well” to “**Further, to** decide well” in the fourth sentence.

Chapter 1, Two Views of Deciding Well, fifth paragraph

Changed “**To** decide well” to “**Further, to** decide well” in the fourth sentence.

Chapter 1, A Timeless View, title

Changed “**A Timeless View**” to “**The Need for Timeless Views.**”

Chapter 1, The Need for Timeless Views, first paragraph

Changed “a timeless view” to “a timeless view **of deciding well**” in the second sentence.

Chapter 1, The Need for Timeless Views, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “left their two-dimensional world find it impossible to convey what they did” to “been lifted above their two-dimensional world find it impossible to explain what happened” in the second sentence.

Changed “Toyota team members find it impossible to convey what they do” to “Production team members find it impossible to explain what happens at Toyota” in the fourth sentence.

Changed “a timeless view” to “a timeless view of deciding well” in the last sentence.

Chapter 3, The Curious End of Believing Well, first paragraph

Changed “completely certain” to “certain” in the second sentence.

Chapter 3, The Curious End of Believing Well, seventh paragraph, footnote

Changed “cooked” to “reduced” and “into” to “to” in the first sentence.

Chapter 3, The Curious End of Believing Well, twelfth paragraph

Changed “Thus,” to “Thus” and “into” to “to form” in the last sentence.

Chapter 3, The Curious End of Believing Well, third from last (Rawls) paragraph, second footnote

Changed “revering life” to “revering life well” in the last sentence.

Chapter 3, Refining Everyday Thinking, ninth paragraph

Changed “this group” to “the arts” in the last sentence.

Changed “undiscovered non-human forms” to “unknown forms” in the last sentence.

Chapter 3, *Understanding Our Failures*, title

Changed “*Understanding Our Failures*” to “*Learning from Experience.*”

Chapter 3, Conclusion, second paragraph, last three sentences

“It also reminds us that applying the tools of the true sciences to the intelligent life sciences foolishly ignores the two-way relation between our beliefs and reality. Our stories about how ants behave do not change the way in which ants behave, but our stories about how we behave tend to change the way in which we behave. Sociobiology may be a good tool for studying ants, but it is a poor tool for studying ourselves.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“It also reminds us that **the stories we use to explain what ants do don’t change what ants do, but the stories we use to explain what we do tend to change what we do. Mindlessly** applying the tools of the true sciences to the intelligent life sciences ignores the two-way relation between our beliefs and reality. **Such mindlessness, which some call *scientism*, leads to catastrophe.**”

Chapter 3, Conclusion, last paragraph

Changed “belief system that supports it” to “**core beliefs** that support it” in the first sentence.

Deleted “**as a whole**” from the last sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, second paragraph, footnote

Changed “**Arguably,**” to “**From the timeless view of deciding well,**” in the first sentence.

Moved footnote (see above) to the end of the **Refining Everyday Thinking** section.

Afterword, first paragraph, last sentence

“**My curt answer is I oppose people who hinder deciding well.**”

was deleted.

Afterword, second paragraph, first sentence

“**I believe that we cannot separate our right to choose from our responsibility to choose well.**”

was changed to:

“**I am not a “conservative.”**”

Afterword, third paragraph, first sentence

“**I also believe that** progress creates stress.”

was changed to:

“**I am also not a “liberal.”** Progress creates stress.”

Afterword, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Thus, I am neither a “conservative” nor a “liberal” in the way in which most people in the United States use these terms.”

was changed to:

“I embrace all who seek to decide well. To decide well is to revere life well. Hence, I am a member of the party of life.”

Afterword, third paragraph

Changed “stress ought to remember” to “the stress of progress ought to take to heart” in the last sentence.

Appendix A, Introduction, third paragraph

Changed “true” to “true based on what we know” in the first sentence.

Appendix A, Introduction, last paragraph

Changed “useful” to “useful in deciding well” in the first sentence.

Appendix A, Human Needs, title

Changed “Human Needs” to “The Farther Reaches of Living Well.”

Appendix A, The Farther Reaches of Living Well, last paragraph

Changed “truth, beauty, and justice” to “Truth, Beauty, and Justice” in the fourth sentence.

Appendix A, Schweitzer’s Universal Spiritual Need, first paragraph

Changed “truth, beauty, and justice” to “Truth, Beauty, and Justice” in the last sentence.

Appendix B, Inducing Knowledge, first paragraph

Changed “uncovered” to “uncovers” in the last sentence.

Changes in Version 2008.07.21

Chapter 2, Three Mistakes, second paragraph

Changed “However, we” to “We” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, The Curious End of Believing Well, ninth paragraph, last footnote

Changed “is normal science, **not** revolutionary science” to “is **more** normal science **than** revolutionary science” in the first sentence.

Chapter 3, Refining Everyday Thinking, last paragraph, footnote, second to last sentence

“We need to enlarge the problem of refining our belief systems **to the limits of imagination.**”

was changed to:

“**To avoid Quine’s two dogmas of empiricism,** we need to enlarge the problem of refining our belief systems **beyond the constraints of language. We need to transcend language.**”

Chapter 3, Refining Stories, fourth paragraph, last footnote

Added the sentence:

“**Note that this claim concerns the demand side of science.**”

Chapter 3, Refining Stories, fourth paragraph, last footnote

“²² Our needs for such things as nutrition and water **arise** on the level of our bodies. Our needs for such things as affection and esteem **arise** on the level of our minds. Our needs for such things as the longing to link **mystically** with something greater than ourselves **arise** on the level of our spirits. Until we thoroughly understand **the complex relations that link our bodies, minds, and spirits,** we ought to weed out all theories about our needs that focus on **any one of these** levels of abstraction. Focusing on any one **of these** levels will tend to blind us to needs that emerge on other levels. This rule weeds out (1) sociobiology, which ignores our minds and spirits; (2) postmodern moral relativism, which ignores our bodies and spirits; and (3) all spiritual teachings that ignore our bodies and minds.”

was changed to:

“²² **In terms of complex adaptive systems, our needs emerge on various levels of abstraction.** Our needs for such things as nutrition and water **emerge** on the level of our **physical** bodies. Our needs for such things as affection and esteem **emerge** on the level of our minds. Our needs for such things as the longing to link **or re-link** with something greater than ourselves **emerge** on the level of our spirits. Until we thoroughly understand **how things that happen on one level of abstraction affect what happens on other levels,** we ought to weed out all theories about our needs that focus on any one level of abstraction. Focusing on any one level will tend to blind us to

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

needs that emerge on other levels. This rule weeds out (1) sociobiology, which ignores our minds and spirits; (2) postmodern moral relativism, which ignores our bodies and spirits; and (3) all spiritual teachings that ignore our bodies and minds.”

Chapter 4, *Sovereign Story of Timeless Science*, third paragraph, footnote

“⁸ From the timeless view of deciding well, the sovereign story of timeless science is nothing more than a refinement of the sovereign story of the Declaration of Independence. In his book *We Hold These Truths* (New York, Macmillan Publishing Company, 1987), Mortimer Adler argues that the Preamble of the Declaration calls for us to pursue happiness justly, where happiness is the timeless end of living well. In contrast, the sovereign story of timeless science calls for us to pursue happiness justly *ever better*.”

was promoted to the body of the text and changed to:

“From the timeless view of deciding well, the sovereign story of timeless science is nothing more than a refinement of the sovereign story of the Declaration of Independence.⁸ The sovereign story of the Declaration calls for us to pursue happiness justly, where happiness is the timeless end of living well. In contrast, the sovereign story of timeless science calls for us to pursue happiness justly *ever better*.”

“⁸ We can see some evidence for this in the history of American attitudes about change. A sovereign story of timeless science should lead to a culture that embraces “thriving in winds and surviving in gales of creative destruction.” Alexis de Tocqueville claimed to have found such a culture during his famous journey across the United States in 1831-32: “Born often under another sky, placed in the middle of an always moving scene, himself driven by the irresistible torrent which draws all about him, the American has no time to tie himself to anything, he grows accustomed only to change, and ends by regarding it as the natural state of man. He feels the need of it, more he loves it; for the instability, instead of meaning disaster to him, seems to give birth only to miracles all about him.” See Pierson, George W., *Tocqueville and Beaumont in America*, (New York: Oxford University Press, 1938), 119. Regrettably, modernism undermined the sovereign story of the Declaration. We see this most clearly in the replacement of the timeless concept of happiness (the timeless end of living well) by the modern concept of happiness (a state of well-being). See Adler, Mortimer, *Ten Philosophical Mistakes*, (New York, Macmillan, 1985), chapter 6. Today, Tocqueville’s claim holds more hope than substance.”

Chapter 4, *The Sovereign Story of Timeless Science*, last paragraph

Changed “this sovereign story” to “the sovereign story of timeless science” in the last sentence.

Afterword

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted. Note that the heading went into the *Sovereign Story of Timeless Science* footnote above.

Changes in Version 2008.07.24

Chapter 1, The EOQ/RTS Example, fifth paragraph

Changed “**making** cars and trucks **in huge batches**” to “**mass producing** cars and trucks” in the third sentence.

Chapter 2, *Two Means of Living Well*, last paragraph, last sentence

Replaced parenthesis around seven deadly sins with a colon.

Chapter 2, *Human Capital, Work, and Leisure*, last paragraph, last two sentences

Changed “**Often** the best way **to do this involves** combining work and leisure. **In religious terms, following our true calling is a blessing.**”

were changed to:

“**We work in order to make ourselves whole. Living well calls for** combining work and leisure.”

Chapter 2, *Three Mistakes*, first paragraph

Changed ““**sticky wages**” (the slowness of the price of labor to fall in response to a fall in the demand for labor)” to “the slowness of the price of labor to fall in response to a fall in the demand for labor (**“sticky wages”**)” in the fourth sentence.

Chapter 2, *Three Mistakes*, last paragraph

Changed “stores **where** shoppers” to “stores **in which** shoppers” in the fifth sentence.

Chapter 3, The Curious End of Believing Well, fifth paragraph, footnote

Changed “**may appear to**” to “**will**” in the first sentence.

Chapter 3, The Curious End of Believing Well, eighth and ninth paragraphs

Merged these two paragraphs.

Chapter 3, The Curious End of Believing Well, new twelfth paragraph, last footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“This expansive concept of justice does more than help us satisfy our need to link or re-link with something greater than ourselves. **It is also useful to us in ways that are less directly bound to our nature.** For example, we need **countless forms of** microorganisms to sustain not only our environment but also our bodies. Further, we can learn about life from virtually every other form of life. For more on the subject of revering life well, see Appendix A.”

was changed to:

“This expansive concept of justice does more than help us satisfy our need to link or re-link with something greater than ourselves. **We need other forms of life to live well.** For example, we need microorganisms to sustain not only our environment but also our bodies. Further, we can learn from virtually every other form of life. **For example, we can learn about composite materials from the fangs of sandworms and about biochemical processes from microorganisms living in extreme environments.** For more on the subject of revering life well, see Appendix A.”

Chapter 4, *Promote Decision Science*, first paragraph

“Deciding well creates the need for ever more knowledge of how to decide well. The better we decide, the harder it is to know how to decide better. Further**more**, the better we all decide, the faster things change. The faster things change, the harder it is to know how to decide well. Policymakers ought to promote ever more knowledge of how to decide well by promoting the timeless science of deciding well.”

was changed to:

“**Governing well is a matter of helping all of us decide well.** Deciding well creates the need for ever more knowledge of how to decide well. The better we decide, the harder it is to know how to decide better. Further, the better we all decide, the faster things change. The faster things change, the harder it is to know how to decide well. Policymakers ought to promote ever more knowledge of how to decide well by promoting the timeless science of deciding well.

“**An important part of deciding well is choosing governments that govern well. Until we choose our governments by how well they govern, we will not get governments that foster knowledge useful in deciding well. We will not get governments that foster the better angels of our natures.**”

Chapter 4, *Conclusion*, last paragraph

“**Further, governing well is a matter of helping all of us decide well. Until we choose our governments by how well they govern, we will not get governments that foster knowledge useful in deciding well. We will not get governments that foster the better angels of our natures.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Changes in Version 2008.07.28

Chapter 1, The EOQ/RTS Example, third paragraph, footnote

Changed “ought to be” to “should be” in the last sentence.

Chapter 1, The Need for Timeless Views, last paragraph

Changed “this larger truth” to “this truth” in the last sentence.

Chapter 3, The Curious End of Deciding Well, fifth paragraph

Changed “personally held values” to “claims to values” in the third sentence.

Deleted the sentence: “These values include such things as the good, the truth, and justice.”

Chapter 3, The Curious End of Deciding Well, tenth paragraph

Changed “all boundless factors of the temporal end of deciding well” to “boundless factors” in the twelfth sentence.

Chapter 3, The Curious End of Deciding Well, eleventh paragraph

Changed “calls on us to” to “calls for us to” in the third and fourth sentences.

Chapter 3, The Curious End of Deciding Well, twelfth paragraph

Changed “boundless factor in deciding well” to “boundless factor” in the first sentence.

Changed “cannot live” to “can never live” in the last sentence.

Chapter 3, Refining Everyday Thinking, last paragraph, footnote

“This section contains an argument for a holistic approach to science based what we need to know in order to decide well. Economists would call this working the demand side of science. Readers interested in an argument for a holistic approach to science based on what economists would call the supply side, which is the normal concern of philosophers of science, will find one in W. V. O. Quine’s “Two Dogmas of Empiricism.” Quine’s argument against reductionism is subject to itself. This bit of recursion creates an open-ended problem that we cannot solve. In the words of Dwight

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Eisenhower, which call to mind the incompleteness theorems of Kurt Gödel, “If a problem cannot be solved, enlarge it.” **To avoid Quine’s two dogmas of empiricism, we need to enlarge the problem of refining our belief systems beyond the constraints of language. We need to transcend language.** This calls for a demand side view of science.”

was changed to:

“This section contains an argument for a holistic approach to science based what we need to know in order to decide well. Economists would call this working the demand side of science. Readers interested in an argument for a holistic approach to science based on what economists would call the supply side, which is the normal concern of philosophers of science, will find one in W. V. O. Quine’s “Two Dogmas of Empiricism.” Quine’s supply side argument against reductionism is subject to itself. This bit of recursion creates an open-ended problem that **suppliers** cannot solve. In the words of Dwight Eisenhower, which call to mind the incompleteness theorems of Kurt Gödel, “If a problem cannot be solved, enlarge it.” This calls for a demand side view **that transcends language. True scientists may take solace in knowing that the problem of reduction is more immediate for the intellectual life sciences than it is for the true sciences.**”

Chapter 4, *The Explicit Experiment*, last paragraph, footnote

“⁷ Both groups of true believers have **seen past political success** put the **government** at risk. **The social justice-inspired Smoot Hawley Tariff Act of 1930 and National Recovery Act (NRA) of 1933 extended and deepened** the Great Depression. **Had the Supreme Court not struck down Title I of the NRA in 1935, the United States might have followed Italy and Germany into national socialism or the Soviet Union into international socialism. The Christianity-inspired Amendment XVIII to the Constitution, which outlawed the manufacture, sale, and transportation of intoxicating liquors in 1920, led to widespread government corruption. Had the voters not repealed this amendment in 1933, it might have so undermined the legitimacy of the government as to have made the government unable to cope with the crises of the late 1930s and early 1940s.**”

was promoted to the body of the text and changed to:

“**True-believing theists once claimed the United States owed its success to their Protestant heritage. Today, they claim it was their Judeo-Christian heritage. In the future, they will likely claim it was their Abrahamic heritage. A better explanation is that the United States owes its success to its timeless tradition of freedom and progress. All who believe that they know the Truth ought to learn to see the world anew.**

“**True-believing socialists want to use government to protect people from stress. A government that seeks to protect its people from stress by retarding progress is unjust.**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

It robs its people, other people, and other species of a better future. All who seek to limit freedom in order to reduce stress ought to remember that foolish policies lead to embedded mistakes in our networks of knowledge-in-use. These mistakes pile up into embacles. Embacles slow progress. They also lead to debacles, the sudden release of pent-up stress. All who would give up essential liberty to purchase a little temporary safety deserve neither liberty nor safety.

“Both groups of true believers have put the United States at risk of major, perhaps fatal debacles. In 1920, true-believing Christians passed an amendment that outlawed the manufacture, sale, and transportation of alcohol. This led to widespread corruption. The voters repealed this amendment in 1933. This was in time to prevent the entire country from following Chicago into gangland chaos at a critical point in world history. In 1933, true-believing socialists passed the National Recovery Act (NRA). The NRA worsened the quality of decision-making, thereby prolonging and deepening the Great Depression. The Supreme Court struck down Title I of this act in 1935. This was in time to prevent the United States from following the Russian Empire, Italy, and Germany into full-blown socialism.”

Chapter 4, *Promote Decision Science*, last paragraph

Changed “governments that govern well” to “governments” in the first sentence.

Appendix A, *Worldly Benefits of Magical Mysticism*, last paragraph, end

Added the sentence: “It can help us to conceive what was inconceivable.”

Appendix A, *Einstein's Twin Warnings*, second paragraph, first sentence

“Belief in a Creator who reveals truths to us about how we ought to live does not rid us of uncertainty about how we ought to live.”

was changed to:

“Most theists believe in a Creator who reveals truths to us about how we ought to live. This belief does not rid us of uncertainty about how we ought to live.”

Changes in Version 2008.07.30

Acknowledgments, second to last paragraph, end

Added the sentence: “I have since tried to put my thoughts into simple, common words.”

Acknowledgments, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**acknowledgment caveat**” to “**warning**” in the first sentence.

Preface, second paragraph

Changed “**strategy for living based on a theory of moral philosophy**” to “theory of **deciding well**” in the second sentence.

Changed “ **strategy for living based on a theory**” to “**theory of deciding well**” in the sixth sentence.

Changed “**theory of moral philosophy**” to “*theory*” in the seventh sentence.

Preface, fifth paragraph, last sentence

“We can never be certain that all crows are black (the induction problem), that all bachelors are unmarried (the analytic versus synthetic truth problem), **or that the whole is nothing more than the sum of its parts (the reductionism problem).**”

was changed to:

“We can never be certain that all crows are black (the induction problem) **or** that all bachelors are unmarried (the analytic versus synthetic truth problem).”

Chapter 3, The Curious End of Deciding Well, tenth paragraph, footnote

“**We can imagine (1) an infinitely large problem that contains all other problems, (2) a means of solving this universal problem, and (3) a means of improving the means of solving this universal problem. Part of the means of improving the means of solving this universal problem (3) is refining our beliefs about (1), (2), and (3). We may call this endless process of refining our beliefs about (1), (2), and (3) “science.” We may also call this means of defining science “boundless pragmatism.”** Note that this holistic definition of science reconciles W. V. O. Quine’s belief that philosophy of science is philosophy enough with Morton White’s apparently contradictory belief that philosophy ought to include the whole of human experience.”

was moved to the end of the sixth paragraph of the **Refining Everyday Thinking** section and changed to:

“Note that this holistic definition of science reconciles W. V. O. Quine’s belief that philosophy of science is philosophy enough with Morton White’s apparently contradictory belief that philosophy ought to include the whole of human experience.”

Chapter 3, Refining Everyday Thinking, last paragraph, footnote

“This section contains an argument for a holistic approach to **science** based what we need to know in order to decide well. Economists would call this working the demand

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

side of **science**. Readers interested in an argument for a holistic approach to **science** based on what economists would call the supply side, which is the normal concern of philosophers of science, will find one in W. V. O. Quine's "Two Dogmas of Empiricism." **Quine's supply side argument against reductionism is subject to itself. This bit of recursion creates an open-ended problem that suppliers cannot solve.** In the words of Dwight Eisenhower, which call to mind the incompleteness theorems of Kurt Gödel, "If a problem cannot be solved, enlarge it." **This calls for a demand side view that transcends language. True scientists may take solace in knowing that the problem of reduction is more immediate for the intellectual life sciences than it is for the true sciences.**"

was changed to:

"This section contains an argument for a holistic approach to **believing well** based what we need to know in order to decide well. Economists would call this working the demand side of **believing well**. Readers interested in an argument for a holistic approach to **believing well** based on what economists would call the supply side, which is the normal concern of philosophers of science, will find one in W. V. O. Quine's "Two Dogmas of Empiricism." **The problem of believing well is timeless.** We address timeless problems, not solve them. In the words of Dwight Eisenhower, which call to mind the incompleteness theorems of Kurt Gödel, "If a problem cannot be solved, enlarge it." **Enlarging the problem of believing well to the limits of imagination calls for considering the demand side of believing well.**"

Chapter 3, *Refining Stories*, fifth paragraph

Changed "learn **by doing**" to "learn" in seventh sentence.

Chapter 4, *Control the Money Supply Passively*, end

Added the paragraph:

"Recessions, like small forest fires, are a blessing. They release embedded mistakes without tearing the fabric of civilization. The choice we face is not between good times and bad times. It is rather between cycles of good times and bad times and longer cycles of good times and major catastrophes."

Appendix B, *Folding in Processes*, fifth paragraph, last sentence

"The lower the production rate, the greater the relative benefits of folding in become."

was changed to:

"Everything else being equal, the lower the production rate, the greater the benefits of folding in are."

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix B, *Folding in Processes*, sixth paragraph

Was merged with the fifth paragraph.

Appendix B, *Folding in Processes*, new sixth paragraph

Changed “Managers” to “We commonly” in the first sentence.

Changed “*custom production*” to “*job shop (custom) production*” in the second sentence.

Appendix B, *Folding in Processes*, new seventh paragraph

Changed “Traditional custom (job shop) production” to “Job shop production” in the first sentence.

Appendix B, *Folding in Processes*, new ninth paragraph

Changed “relatively simple” to “simple” in the first sentence.

Changed “compared with” to “compared to” in the last sentence.

Appendix B, *Folding in Processes*, last paragraph

Changed “custom” to “job shop” in the first sentence.

Appendix B, *Smoothing Flows*, fourth paragraph

Added paragraph breaks after the second and fourth sentences.

Appendix B, *Machine Tools*, first paragraph

Changed “compared with” to “compared to” in the sixth sentence.

Appendix B, *Machine Tools*, second paragraph

Changed “an industrial-age view” to “a temporal view of producing well common in the West” in the first sentence.

Changed “a knowledge-age view” to “a timeless view of producing well” in the third sentence.

Changed “a knowledge-age view” to “a timeless view” in the fifth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2008.08.02

Entire work, footnotes

Added hyperlinks to Amazon for all book references in the on-line version.

Chapter 1, The Need for Timeless Views, last paragraph

Changed “what happened to their fellows” to “what happened **in higher planes of existence** to their fellows” in the second sentence.

Chapter 2, Title Heading

Changed reference from **Bantam Books** to **Columbia University Press**.

Chapter 2, *Pleasure and Pain*, second paragraph

Changed “**defined**” to “**described**” in the third sentence.

Deleted “, **this losing ourselves in activity,**” from the eighth sentence.

Chapter 2, Trade, first paragraph

Changed “**complex** interplay” to “interplay” in the last sentence.

Chapter 3, The Curious End of Deciding Well, twelfth paragraph

Changed “boundless factor” to “boundless factor **of deciding well**” in the first sentence.

Chapter 3, The Curious End of Deciding Well, thirteenth paragraph

“However, when we try to learn more about Justice by considering this, we find ourselves continuously returning to the endless pursuits of the Good and the Truth. **We are** in a mental hall of mirrors.”

were changed to:

“However, when we try to learn more about Justice by considering this, we find ourselves continuously returning to the endless pursuits of the Good and the Truth; **we find ourselves** in a mental hall of mirrors.”

Chapter 3, The Curious End of Deciding Well, thirteenth paragraph

Merged with the twelfth paragraph.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Refining Stories*, fourth paragraph, footnote

Changed “terms of complex adaptive systems” to “complexity science terms” in the first sentence.

Chapter 3, *A Crude Look at the Whole*, second paragraph, last five sentences

“Chief among these are wisdom, trust, and freedom. Wisdom includes knowledge of both timeless and temporal tools. Trust includes the belief that governments will act as expected, hence the rule of law. Freedom includes rights to property. In the endless pursuit of deciding well, wisdom, trust, and freedom are strategic assets.”

were changed to:

“In the endless pursuit of deciding well, these factors are strategic assets.”

Chapter 3, *A Tale of Revolutions*, first paragraph, quote

“The rapid Progress *true* science now makes occasions my regretting sometimes that I was born so soon. It is impossible to imagine the Height to which may be carried, in a thousand years, the Power of Man over Matter. We may perhaps learn to deprive large Masses of their Gravity and give them absolute Levity, for the sake of easy Transport. Agriculture may diminish its labor and double its Produce; all Diseases may be by sure means prevented or cured, not excepting even that of Old Age, and our Lives lengthened at pleasure even beyond the antediluvian Standard. O that moral Science were in a fair way of Improvement, that Men would cease to be Wolves to one another, and that human beings would at length learn what they now improperly call Humanity!”²⁸

“²⁸ Franklin, Benjamin, *The Writings of Benjamin Franklin*, edited by Albert Henry Smyth, (New York: Macmillan, 1905), vol. VIII, p 10.”

was changed to:

“The rapid progress *true* science now makes, occasions my regretting sometimes that I was born so soon. It is impossible to imagine the height to which may be carried, in a thousand years, the power of man over matter. We may perhaps learn to deprive large masses of their gravity and give them absolute levity, for the sake of easy transport. Agriculture may diminish its labor and double its produce; all diseases may be by sure means prevented or cured, not excepting even that of old age, and our lives lengthened at pleasure even beyond the antediluvian standard. O that moral science were in a fair way of improvement, that men would cease to be wolves to one another, and that human beings would at length learn what they now improperly call humanity!”²⁸

“²⁸ Franklin, Benjamin, *The Works of Benjamin Franklin*, edited by Jared Sparks, (Chicago: Townsend MacCoun, 1882), vol. VIII, p 418. Available in the public domain at Google books, (2 August 2008).”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *The Explicit Experiment*, fifth paragraph

“There are at least two ways of settling this conflict between sovereign stories. The first is to claim that the Declaration story concerns justice and the Constitution story concerns legality. This claim of a source of justice higher than the general will of society favors theists who want to enshrine what they believe to be true in law. The second is to dismiss the Creator statement in the Declaration as a theistic statement that has become ritual and non-theistic through long customary usage. This claim of “ceremonial deism” favors socialists who want to enshrine what they believe to be true in law. Both of these groups of true believers want the government to act according to their beliefs about what is true. True believers in theism want the government to administer theistic justice; true believers in socialism want government to administer social justice. Both groups want their religion to become the state religion.”

was changed to:

“How do citizens reconcile the idealistic story of the Declaration with the pragmatic story of the Constitution? One popular way is to claim that the Declaration story concerns justice and the Constitution story concerns legality. This affirms a theistic source of justice higher than the social contract. Another popular way is to claim that the Declaration story has become ritual and non-theistic through long customary use. This denies a source of justice higher than the social contract. Both of these ways violate the spirit, if not the letter, of the First Amendment. The first way establishes a state religion based on the pursuit of theistic justice and the second establishes a state religion based on the pursuit of social justice.”

“The First Amendment has not stopped true believers in theistic justice or true believers in social justice from seeking to establish their religion as the state religion. Both groups of true believers have put Benjamin Franklin’s political experiment in mortal danger. In 1920, true believers in theistic justice passed an amendment that took away the freedom to make, sell, and transport alcoholic beverages. Widespread violations of this law led to widespread corruption. The voters repealed this amendment in 1933. This was in time to prevent the entire country from following big cities into gangland chaos at a critical point in world history. In 1933, true believers in social justice passed the National Industrial Recovery Act. This act put many of the most basic decisions about buying and selling in the hands of government bureaucrats and industrial boards. The resulting fall in the quality of decision-making greatly prolonged and deepened the Great Depression. In a case challenging whether the federal government could take away not only local butchers freedom to choose the price of the chickens they offered and what wages they paid their workers, but also their customers freedom to choose which chickens to buy (*A. L. A. Schechter Poultry Corporation v. United States*, 295 U. S. 495), the Supreme Court struck down Title I of this act in 1935. This was in time to prevent the country from following the Russian Empire, Italy, and Germany into full-blown socialism. If Benjamin Franklin were alive today, he would likely remind us that all who would give up essential liberty to purchase a little temporary safety deserve neither liberty nor safety. He would also

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

likely tell us that all who believe that they know the Truth ought to see the world anew.”

Chapter 4, *The Explicit Experiment*, sixth, seventh, and eighth paragraphs

“True-believing theists once claimed the United States owed its success to their Protestant heritage. Today, they claim it was their Judeo-Christian heritage. In the future, they will likely claim it was their Abrahamic heritage. A better explanation is that the United States owes its success to its timeless tradition of freedom and progress. All who believe that they know the Truth ought to learn to see the world anew.

“True-believing socialists want to use government to protect people from stress. A government that seeks to protect its people from stress by retarding progress is unjust. It robs its people, other people, and other species of a better future. All who seek to limit freedom in order to reduce stress ought to remember that foolish policies lead to embedded mistakes in our networks of knowledge-in-use. These mistakes pile up into embacles. Embacles slow progress. They also lead to debacles, the sudden release of pent-up stress. All who would give up essential liberty to purchase a little temporary safety deserve neither liberty nor safety.

“Both groups of true believers have put the United States at risk of major, perhaps fatal debacles. In 1920, true-believing Christians passed an amendment that outlawed the manufacture, sale, and transportation of alcohol. This led to widespread corruption. The voters repealed this amendment in 1933. This was in time to prevent the entire country from following Chicago into gangland chaos at a critical point in world history. In 1933, true-believing socialists passed the National Recovery Act (NRA). The NRA worsened the quality of decision-making, thereby prolonging and deepening the Great Depression. The Supreme Court struck down Title I of this act in 1935. This was in time to prevent the United States from following the Russian Empire, Italy, and Germany into full-blown socialism.”

were deleted.

Chapter 4, *The Sovereign Story of Timeless Science*, third paragraph, footnote

Added the following to the end of the Tocqueville quote:

“(The idea of perfection, of continuous and endless amelioration of social conditions, this idea is presented to him unceasingly, in all its aspects.)”

Chapter 4, *Judging Interventions*, second paragraph

Changed “alcohol during the roaring twenties” to “intoxicating liquors during the 1920s” in the fourth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix A, *Schweitzer's Universal Spiritual Need*, fourth paragraph, first six sentences

“Pure magical mysticism requires that we abandon life rather than live it. It only becomes practicable when mixed with ethical mysticism. Because it ignores our relation with the world, it offers no foundation for an ethical system.⁴ Ethical mysticism does not involve this problem. However, unlike the magical, it can be incomplete. Where complete ethical mysticism stems from a union with all life, incomplete forms stem from a union with something less.⁵”

“⁴ We see this in ancient Hinduism’s failure to explain adequately how merit (*karma*), which concerns our relation with the infinite Being, relates to worldly duty (*dharma*), which concerns our relation with life. The resulting caste system has been a tremendous hindrance to progress toward the timeless end of deciding well.”

“⁵ Incomplete forms of ethical mysticism include those of such modern Western movements as nationalism, socialism, fascism, and communism.”

were changed to:

“Pure magical mysticism requires that we abandon life rather than live it. It only becomes practicable when mixed with ethical mysticism. Because it ignores our relation with the world, it offers no foundation for an ethical system. We see this in ancient Hinduism’s failure to explain adequately how merit (*karma*), which concerns our relation with the infinite Being, relates to worldly duty (*dharma*), which concerns our relation with life. The resulting caste system has been a great hindrance to progress toward the timeless end of deciding well.

“Ethical mysticism does not involve this problem. However, unlike the magical, it can be incomplete. Where complete ethical mysticism stems from a union with all life, incomplete forms stem from a union with something less. Incomplete forms of ethical mysticism include those of such modern Western movements as nationalism, socialism, fascism, and communism.”

Appendix A, *Worldly Benefits of Magical Mysticism*, second paragraph, footnote

Changed reference from Bantam Books to Columbia University Press.

Appendix A, *Worldly Benefits of Magical Mysticism*, last paragraph

Changed “complex interplay of changes” to “interplay” in the third sentence.

Appendix A, Conclusion, title

Changed title to “Finding Beautiful Problems.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix B, Temporal Details, first paragraph, footnote

Changed title from *Toyota Production System* to *Toyota Production System: Beyond Large-Scale Production*.

Appendix B, Production Links, third paragraph, footnote

Changed title from *Toyota Production System* to *Toyota Production System: Beyond Large-Scale Production*.

Appendix B, Summary, title

Changed title to “**Less is More**.”

Changes in Version 2008.08.09

Chapter 1, Two Views of Deciding Well, first paragraph, footnote

Moved second sentence (book reference) to the end of the footnote.

Chapter 1, The EOQ/RTS Example, last paragraph

“In summary, the EOQ model aims at the temporal end of producing what we currently need to produce well. From this temporal view, we base excellence in means on solely on what we currently know. We do not care about what we might learn by doing. In contrast, the RTS model aims at the timeless end of producing well. From this timeless view, we base excellence in means on both what we currently know and what we may learn by doing. We care about replacing non-knowledge resources with knowledge resources in the pursuit of the timeless end of producing well.”

was deleted.

Chapter 1, The Need for Timeless Views, last paragraph

Changed “‘**efficiency**’ and ‘**excellence in means**’” to “‘**excellence in means**’ and ‘**efficiency**’” in the fourth sentence.

Chapter 3, Computer Models, first paragraph, footnote

Changed “**reprinted**” to “**available**” in the last sentence.

Chapter 3, A Tale of Revolutions, first paragraph, last footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “Available in the public domain at Google” to “Searchable text available in Google books” in the last sentence.

Chapter 3, *A Tale of Revolutions*, last paragraph, footnote

Changed “In the language of complex adaptive systems, a” to “A” in the last sentence.

Changed “belief system” to “system of core beliefs” in the first sentence.

Chapter 3, Conclusion, last paragraph

Changed “it” to “timeless science” in the first sentence.

Chapter 4, *The Explicit Experiment*, second paragraph

Changed “proposition to be tested” to “experiment” in the third sentence.

Chapter 4, *The Explicit Experiment*, fifth paragraph

Changed “source” to “theistic source” in the fifth sentence.

Changed “Both” to “From the timeless view of deciding well, both” in the sixth sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, first paragraph

Switched the order of the last two sentences. The civil faith sentence now comes before the ship of state sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, third paragraph

Changed “Franklin’s sovereign story of moral science” to “the sovereign rights story of the Declaration” in the first sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, third paragraph

“From the timeless view of deciding well, the sovereign story of timeless science is nothing more than a refinement of the sovereign story of the Declaration of Independence.⁸ The sovereign story of the Declaration calls for us to pursue happiness justly, where happiness is the timeless end of living well. In contrast, the sovereign story of timeless science calls for us to pursue happiness justly *ever better*.”

⁸ We can see some evidence for this in the history of American attitudes about change. A sovereign story of timeless science should lead to a culture that embraces “thriving in winds and surviving in gales of creative destruction.” Alexis de Tocqueville claimed to have found such a culture during his famous journey across the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

United States in 1831-32: “Born often under another sky, placed in the middle of an always moving scene, himself driven by the irresistible torrent which draws all about him, the American has no time to tie himself to anything, he grows accustomed only to change, and ends by regarding it as the natural state of man. He feels the need of it, more he loves it; for the instability, instead of meaning disaster to him, seems to give birth only to miracles all about him. (The idea of perfection, of continuous and endless amelioration of social conditions, this idea is presented to him unceasingly, in all its aspects.)” See Pierson, George W., *Tocqueville and Beaumont in America*, (New York: Oxford University Press, 1938), 119. **Regrettably, modernism undermined the sovereign story of the Declaration. We see this most clearly in the replacement of the timeless concept of happiness (the timeless end of living well) by the modern concept of happiness (a state of well-being). See Adler, Mortimer, *Ten Philosophical Mistakes*, (New York, Macmillan, 1985), chapter 6. Today, Tocqueville’s claim holds more hope than substance.”**

was merged with last paragraph and changed to:

“From the timeless view of deciding well, the sovereign **rights** story of timeless science is nothing more than a refinement of the sovereign **rights** story of the Declaration. The Declaration **story** calls for us to pursue happiness justly.⁸ In contrast, the timeless science **story** calls for us to pursue happiness justly *ever better*.⁹”

⁸ **Regrettably, modernism undermined the sovereign story of the Declaration. We see this most clearly in the replacement of the timeless concept of happiness (the timeless end of living well) by the modern concept of happiness (a state of well-being). See Adler, Mortimer, *Ten Philosophical Mistakes*, (New York, Macmillan, 1985), chapter 6.”**

⁹ We can see some evidence for **the claim that the Declaration story is a crude timeless science story** in the history of American attitudes about change. A timeless science **story** should lead to a culture that embraces “thriving in winds and surviving in gales of creative destruction.” Alexis de Tocqueville claimed to have found such a culture during his famous journey across the United States in 1831-32: “Born often under another sky, placed in the middle of an always moving scene, himself driven by the irresistible torrent which draws all about him, the American has no time to tie himself to anything, he grows accustomed only to change, and ends by regarding it as the natural state of man. He feels the need of it, more he loves it; for the instability, instead of meaning disaster to him, seems to give birth only to miracles all about him. (The idea of perfection, of continuous and endless amelioration of social conditions, this idea is presented to him unceasingly, in all its aspects.)” **After the corruption of the Declaration story by modernism, Tocqueville’s claim holds more hope than substance.** See Pierson, George W., *Tocqueville and Beaumont in America*, (New York: Oxford University Press, 1938), 119.”

Chapter 4, *The Sovereign Story of Timeless Science*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “sovereign story” to “sovereign **rights** story” in the second to last sentence.

Chapter 4, *Control the Money Supply Passively*, last paragraph

Changed “like **small** forest fires” to “like forest fires **that burn only underbrush**” in the first sentence.

Added the sentence: “**To seek to prolong good times is short-sighted.**”

Appendix A, *Finding Beautiful Problems*, title

Changed title to “**Making Beautiful Decisions.**”

Changes in Version 2008.08.11

Entire document

Changed “can **also**” to “**also** can” in all (6 occurrences).

Chapter 1, *Setting Words Aright*, first paragraph, last sentence

“**Concepts are resources for helping us to achieve our ends.**”

was deleted.

Chapter 1, *Two Views of Deciding Well*, third paragraph

Changed “**Deciding well calls for us**” to “**To decide well is**” in the fourth sentence.

Changed “**Deciding well calls for us**” to “**To decide well is**” in the last sentence.

Deleted the footnote:

“**⁵ The distinction between efficiency and effectiveness depends on the scale of the temporal problem. What is a matter of efficiency at one problem scale is a matter of effectiveness at another. Imagine a hierarchical organization that defines the scale of temporal problems in terms of each member’s freedom to decide. What would be a matter of efficiency at a high level in the organization would be a matter of effectiveness at a lower level. In planning terms, what would be a matter of tactics at a high level in the organization would be a matter of strategy at a lower level. *Failure to define a temporal problem scale can cause great confusion.***”

Chapter 1, *Two Views of Deciding Well*, fourth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the temporal view, **the formal process of deciding** consists of (1) formulating alternatives; (2) evaluating alternatives; (3) choosing an alternative; and (4) implementing the chosen alternative. **The process of deciding well is a matter of performing these formal steps well, which includes balancing the cost and benefits of each step. Few decisions deserve all of these formal steps. Further, to decide well is to decide perfectly.** In modern economic terms, our actions reveal our preferences.”

was changed to:

“From the temporal view, **a formal decision event** consists of (1) formulating alternatives; (2) evaluating alternatives; (3) choosing an alternative; and (4) implementing the chosen alternative. **To decide well is to decide perfectly.**⁵ In modern economic terms, our actions reveal our preferences.”

“⁵ To decide well is also a matter of performing these formal steps well, which includes balancing the cost and benefits of each step. Few decision events deserve all of these formal steps.”

Chapter 1, Two Views of Deciding Well, fourth paragraph

“From the timeless view, **the formal process of deciding** is endlessly repeating **the** cycle of (1) finding a problem to solve based on **a timeless end**; (2) formulating alternatives; (3) evaluating alternatives; (4) choosing an alternative; (5) implementing the chosen alternative; and (6) learning from the experience. **The process of deciding well is a matter of performing these formal steps well, which includes balancing the cost and benefits of each step. Few decisions deserve all of these formal steps. Further, to decide well is not to decide perfectly.** We make mistakes. We learn from our mistakes. Waste is a regrettable by-product of learning-by-doing.”

was changed to:

“From the timeless view, **a formal decision process** is **the** endlessly repeating cycle of (1) finding a problem to solve based on **the timeless end of the process**; (2) formulating alternative **solutions to the chosen problem**; (3) evaluating **these** alternatives; (4) choosing an alternative; (5) implementing the chosen alternative; and (6) learning from the experience. **To decide well is not to decide perfectly.** We make mistakes. We learn from our mistakes. Waste is a regrettable by-product of learning-by-doing.”

“⁶ To decide well is also a matter of performing these formal steps well, which includes balancing the cost and benefits of each step. Few decision cycles deserve all of these formal steps.”

Chapter 3, The Curious End of Believing Well, seventh paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “is **more** normal science **than** revolutionary science” to “is normal science, **not** revolutionary science” in the first sentence.

Chapter 3, *The Elephant in the Room*, third paragraph

“The essential theological explanation of this coincidence is **even more** simple and straightforward. The Creator created us with the need to seek the Creator. We seek the Creator by deciding well.”

was changed to:

“The essential theological explanation of this coincidence is **as** simple and straightforward. The Creator created us with the need to seek the Creator. We seek the Creator by deciding well. **Crude means of deciding well emerged from our religious impulse to seek the Creator. Over time, we refine our means of deciding well by deciding well. We learn by doing. Deciding well and our understanding of deciding well co-evolve.**”

Chapter 3, *Refining Stories*, fourth paragraph

Deleted “**(the Good)**” from the third sentence.

Moved last footnote to the end of the last sentence.

Changed the last sentence from:

“**People who decide well consider their** bodies, minds, **and** spirits.”

to:

“**To think of ourselves as animals, as computers, or as angels, rather than as human beings, is certain to embed major mistakes into our networks of knowledge-in-use. We ought to consider our** bodies, minds, **and** spirits.”

Chapter 3, *Refining Stories*, fifth paragraph

“We also ought to weed out all **stories that fall short of the timeless end of Justice. Foremost of these are** stories that concern efficiency. **We pursue Justice by deciding well.** As we saw in the EOQ/RTS example, deciding well is not the same thing as acting efficiently. **For example, we** ought to weed out all stories that **aim at** sustaining a good society. Consider what our lives would be like today if all previous generations of humans aspired to nothing more than to sustain a good society. **Deciding well** calls for us to learn. It calls for us to leave the caves of our ancestors.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We also ought to weed out **all temporal stories**. Hence, we ought to weed out all stories that concern efficiency. As we saw in the EOQ/RTS example, deciding well is not the same thing as acting efficiently. We also ought to weed out all stories that **concern either sustainability or society, and doubly so all stories that concern** sustaining a good society. Consider what our lives would be like today if all previous generations of humans aspired to nothing more than to sustain a good society. **The timeless end of** deciding well calls for us to learn. It calls for us to leave the caves of our ancestors.”

Changes in Version 2008.08.15

Preface, seventh paragraph

Changed “**people**” to “**modern thinkers**” in the first sentence.

Chapter 1, The EOQ/RTS Example, fifth paragraph

Changed “similar parts as smoothly as identical parts” to “**batches of** similar parts as smoothly as **masses of** identical parts” in the fifth sentence.

Changed “(3) coordinating batch production precisely, **and (4) maintaining high rates of machine tool availability**” to “**and** (3) coordinating batch production precisely” in the sixth sentence.

Chapter 1, The EOQ/RTS Example, fifth paragraph

Changed “similar parts as smoothly as identical parts” to “**batches of** similar parts as smoothly as **masses of** identical parts” in the fifth sentence.

Changed “(3) coordinating batch production precisely, **and (4) maintaining high rates of machine tool availability**” to “**and** (3) coordinating batch production precisely” in the sixth sentence.

Chapter 2, Introduction, second paragraph

Changed “**tools**” to “**concepts**” in the first sentence.

Chapter 2, *Human Capital, Work, and Leisure*, first paragraph

Changed “**trading off**” to “**balancing**” in the last sentence.

Chapter 2, *Human Capital, Work, and Leisure*, second paragraph

Changed “**combining**” to “**combining**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, *Trust*, last paragraph

Changed “trading ills” to “economic ills” in the last sentence.

Chapter 2, *Three Mistakes*, last paragraph

Changed “promote” to “increase” in the first sentence.

Chapter 3, *The Curious End of Believing Well*, tenth paragraph

Changed “what is so clearly wrong” to “what so clearly unjust” in the tenth sentence.

Chapter 3, *The Curious End of Believing Well*, second from last paragraph

Changed “debt” to “debts” in the second sentence.

Chapter 3, *Refining Deciding Well*, second paragraph, last sentence, footnote

“There is a twist.”

was changed to:

“However, communication across paradigms is only partial.”

Added the following sentence to the end of the footnote:

“In the fullness of time, we must deal with the consequences of our actions.”

Chapter 3, *A Tale of Revolutions*, second paragraph, footnote

Changed “please ourselves rather than how decide well” to “seek to please ourselves rather than how we seek to decide well” in the last sentence.

Chapter 4, *Control the Money Supply Passively*, last paragraph

Changed “good times and bad times and longer cycles” to “good times and bad times, and longer cycles” in the fourth sentence.

Appendix A, *Balanced Excellence*, last paragraph

“Some means to mystical oneness sacrifice safety or health in order to conserve scarce resources. Most successful religions include beliefs to check these extreme means. Examples include the beliefs that we have as many lifetimes as it takes to reach mystical union and that we can reach the ultimate end of existence in an existence after death. Healthy religions balance the emotional (Dionysian) and reasonable (Apollonian) means to mystical oneness.⁸”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“⁸ Maslow, Abraham H., *Religions, Values, and Peak Experiences*, (New York: Viking, 1970), preface.”

was changed to:

“Some means to mystical oneness sacrifice safety or health in order to conserve scarce resources. Religions that revere life include beliefs to check these extreme means. **One example is the Hindu belief that we have as many lifetimes as it takes to reach mystical union. Another is the Catholic belief that we can reach mystical union during an existence after death known as purgatory. Life-revering religions balance emotional and reasonable means to mystical oneness.**”

“⁸ **Compare this claim to Maslow’s modern Western belief that healthy religions balance the Dionysian and Apollonian means to religious experience.** Maslow, Abraham, *Religions, Values, and Peak Experiences*, (New York: Viking, 1970), preface.”

Appendix A, Making Beautiful Decisions, title

Changed title to “**Deciding Beautifully.**”

Appendix A, Making Beautiful Decisions, first paragraph, second sentence

“These tools **come** in two **types.**”

was changed to:

“**We may divide** these tools into two **groups.**”

Changes in Version 2008.08.16

Chapter 1, Two Views of Deciding Well, first paragraph, footnote

Deleted “**the philosophical term**” from the fifth sentence.

Chapter 1, Two Views of Deciding Well, third paragraph, last three sentences

“**F**rom the timeless view of deciding well, excellence in means is not only excellence in solving temporal problems but also excellence in choosing temporal problems to solve. We commonly call excellence in choosing temporal problems to solve *effectiveness*. To decide well is to decide both efficiently and effectively.”

were moved to a new paragraph between the fourth and fifth paragraphs.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Two Views of Deciding Well, fourth paragraph

Changed “From the temporal view, a” to “A” in the first sentence.

Merged paragraph with the preceding paragraph

Chapter 1, Two Views of Deciding Well, fifth paragraph

Changed “From the timeless view, a” to “A” in the first sentence.

Merged paragraph with the preceding paragraph.

Chapter 1, Two Views of Deciding Well, last paragraph

“Modern economists call people who act according to the temporal view of deciding well “rational.” In contrast, we commonly call people who act according to the timeless view “wise.””

was deleted.

Chapter 1, The EOQ/RTS Example, first paragraph, first sentence

“We can see the difference between the temporal and timeless views of deciding well in two models for helping us to decide how often to set up machine tools.”

was made into a new paragraph and changed to:

“Modern economists call people who act according to the temporal view of deciding well “rational.” In contrast, we commonly call people who act according to the timeless view “wise.” We can see the difference between acting *rationally* and acting *wisely* in two models for helping us to decide how often to set up machine tools.”

Chapter 4, The Sovereign Story of Timeless Science, last paragraph

Changed “*ever better*” to “*ever more wisely*” in the third sentence.

Changes in Version 2008.08.20

Preface, eighth paragraph, last sentence

“Beliefs about how we fit into the whole help us to decide well.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“When we expand the scope of the problems we face to the limits of imagination, a timeless structure emerges. This structure can help us find better problems to solve.”

Chapter 2, Wealth, first paragraph

Changed “actually need” to “truly need” in the last sentence.

Chapter 2, *Virtuous Circles*, last paragraph, second sentence

“Pursuing the virtuous circle of pleasure and joy creates wealth.”

was changed to:

“We live well by pursuing the virtuous circle of pleasure and joy.”

Chapter 2, Wisdom, third and fourth paragraphs

Merged these two paragraphs.

Chapter 3, The Curious End of Believing Well, fifth paragraph

Moved the footnote from the end of the third sentence to the end of the paragraph.

Chapter 3, Computer Models, last paragraph, footnote

Changed “This statement conflicts” to “This conflicts” in the first sentence.

Chapter 3, *A Tale of Revolutions*, first paragraph, all but first sentence

“Four years later, in the midst of a war that had spread from North America to the Indian subcontinent, a retired printer turned diplomat shared his thoughts on the future of science with a preacher friend:

“The rapid progress *true* science now makes, occasions my regretting sometimes that I was born so soon. It is impossible to imagine the height to which may be carried, in a thousand years, the power of man over matter. We may perhaps learn to deprive large masses of their gravity and give them absolute levity, for the sake of easy transport. Agriculture may diminish its labor and double its produce; all diseases may be by sure means prevented or cured, not excepting even that of old age, and our lives lengthened at pleasure even beyond the antediluvian standard. O that moral science were in a fair way of improvement, that men would cease to be wolves to one another, and that human beings would at length learn what they now improperly call humanity!”²⁸

Thus did Benjamin Franklin share his plea for a timeless concept of science with his fellow amateur scientist, Joseph Priestley. Regrettably, Franklin’s plea went against Smith’s economic logic, which calls for us to please ourselves, not to decide well.²⁹”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“²⁸ Franklin, Benjamin, *The Works of Benjamin Franklin*, edited by Jared Sparks, (Chicago: Townsend MacCoun, 1882), vol. VIII, p 418. Searchable text available in Google books, (2 August 2008).”

“²⁹ This is not to say that Adam Smith did not consider moral philosophy, which he did in his first great work, *The Theory of Moral Sentiments*. It is only to say that Smith based his economics on how we seek to please ourselves rather than on how we seek to decide well.”

were deleted.

Chapter 3, *A Tale of Revolutions*

Merged the two paragraphs into one. Merged the section into the previous section, *A Crude Look at the Whole*.

Chapter 4, *A Tale of Revolutions*, first paragraph, all but first sentence

“We can see Franklin’s desire for a timeless approach to science in his February, 1780 letter to fellow amateur scientist Joseph Priestley, which contains pleas for expanding the scope of the true sciences in time and for expanding the scope of science into the realm of moral philosophy:

“The rapid progress *true* science now makes, occasions my regretting sometimes that I was born so soon. It is impossible to imagine the height to which may be carried, in a thousand years, the power of man over matter. We may perhaps learn to deprive large masses of their gravity and give them absolute levity, for the sake of easy transport. Agriculture may diminish its labor and double its produce; all diseases may be by sure means prevented or cured, not excepting even that of old age, and our lives lengthened at pleasure even beyond the antediluvian standard. O that moral science were in a fair way of improvement, that men would cease to be wolves to one another, and that human beings would at length learn what they now improperly call humanity!”⁴

“⁴ Franklin, Benjamin, *The Works of Benjamin Franklin*, edited by Jared Sparks, (Chicago: Townsend MacCoun, 1882), vol. VIII, p 418. Searchable text available in Google books, (2 August 2008).”

Chapter 4, *The Sovereign Story of Timeless Science*, first paragraph

Changed “safe” to “seaworthy” in the last sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, last paragraph

“From the timeless view of deciding well, the sovereign rights story of timeless science is nothing more than a refinement of the sovereign rights story of the Declaration. The Declaration story calls for us to pursue happiness justly.⁹ In contrast,

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

the timeless science story calls for us to pursue happiness justly *ever more wisely*.¹⁰ The promise of the sovereign story of timeless science is to improve the overall quality of decision-making, thereby yielding the greatest progress toward the timeless end of a good life for all with the least amount of turbulence in the flow of resources. Supported by good policies, this sovereign rights story should fulfill its promise. A ship of state so built, handled well, should cut through turbulent seas like no other.”

was changed to:

“From the timeless view of deciding well, this sovereign rights story is nothing more than a refinement of the sovereign rights story of the Declaration. The Declaration story calls for us to pursue happiness justly.⁹ In contrast, this story calls for us to pursue happiness justly *ever more wisely*.¹⁰ Supported by good policies, it should improve decision quality more than any other. A ship of state built along these lines should cut through turbulent seas like no other.”

Appendix A, The Farther Reaches of Living Well, second paragraph

Changed “is living” to “is a matter of living” in the last sentence.

Appendix A, The Farther Reaches of Living Well, last paragraph

Changed “scientific approach” to “modern scientific approach” in the second sentence.

Changes in Version 2008.08.23

Entire Document, text footnotes with references

Incorporated references into text rather than having the reference at the end of the text. In the HTML version, these include (1) the fourth footnote in the first chapter, (2) the third footnote of the second chapter, (3) the nineteenth footnote in the third chapter, (4) the tenth footnote of the fourth chapter, and (5) the sixteenth footnote in the fourth chapter. Note that the footnote numbers will be one less for chapters with heading references in the Word version. Made a minor change to the third footnote in the second chapter regarding the difference between high transaction cost versus high fixed cost, low variable cost trade relation distinction.

Chapter 1, Two Views of Deciding Well, fourth paragraph, footnote

Changed “To decide well is also” to “Here again, to decide well is” in the last sentence.

Chapter 3, Refining Stories, fourth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “*and*” to “and” in the last sentence.

Chapter 4, *The Explicit Experiment*, third paragraph

Deleted the clause: “, which contains pleas both for expanding the scope of the true sciences in time and for expanding the scope of science into the realm of moral philosophy” from the first sentence.

Moved entire paragraph into its footnote and placed the footnote at the end of the preceding paragraph.

Chapter 4, *The Explicit Experiment*, last paragraph

Changed “timeless view of deciding well” to “timeless view” in the sixth sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, last paragraph

Changed “A ship of state” to “Handled well, a ship of state” in the last sentence.

Chapter 4, *Tax Well*, first paragraph, last sentence

“Policymakers ought to give as much attention to how they tax as to how they spend.”

was changed to:

“From the temporal view, the power to tax is the power to destroy. Taxing owners of houses based on the number of windows will reduce the number of windows in houses. Similarly, taxing medical researchers based on the number of animals they use in their experiments will reduce the number of animals used in medical experiments.

“From the timeless view, the power to tax is the power to induce the creation and use of particular knowledge. Taxing the number of windows in houses will induce the creation and use of knowledge of how to live with fewer windows. Similarly, taxing the number of animals used in medical experiments will induce the creation and use of knowledge of how to experiment using fewer animals. Taxing, like restricting speech or actions, affects how we create and use knowledge. The embedded mistakes from taxing foolishly are just as real, and just as dangerous, as those from restricting speech or actions foolishly.¹⁴”

“¹⁴ Modern examples of taxing decisions leading to major catastrophes include the failure of governments to consider the true costs of petroleum products. The foolishness of subsidizing petroleum fuel prices is obvious. Less obvious is the foolishness of the United States Congress not to consider the cost of maintaining world-wide order by threat of arms when determining taxes. Arrested world-wide development due to high fuel prices and the rise of petro-state dictators are far more “clear and present” dangers than the threat of man-made global warming.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *Promote Savings for Welfare*, last paragraph, last footnote

Changed “freely available to everyone else” to “knowable to all” in the third sentence.

Changes in Version 2008.08.30

Acknowledgments, second paragraph, first four sentences

“The first three were Pomona College professors. Frederick Sontag pushed me never to stop becoming more than I am. For a third of a century Fred has been extremely generous with his most precious resource, his time. James Likens often told us that social scientists tell many stories about this or that complex phenomenon. Jim also told us that economists do not do dynamics well. Gordon Douglass exposed me to methodology, an activity so dangerous to the emotional health of economists that George Stigler once joked that economists ought to leave it to the end of their careers. My last semester in college, I took an independent study course in human capital theory from Gordon.”

were changed to:

“The first three were Pomona College professors Frederick Sontag, James Likens, and Gordon Douglas. Fred pushed me never to stop becoming more than I am. For a third of a century he has been extremely generous with his most precious resource, his time. Jim often told us that social scientists tell many stories about this or that complex phenomenon. He also told us that economists do not do dynamics well. My last semester in college, I took an independent study course in human capital theory from Gordon. This course exposed me to methodology, a subject so dangerous to the emotional health of economists that George Stigler once joked that economists ought to leave it to the end of their careers.”

Acknowledgments, third paragraph

Changed “professors at the Stanford Graduate School of Business” to “Stanford Graduate School of Business professors” in the first sentence.

Acknowledgments, seventh paragraph

Changed “simple, common words” to “simple, common language” in the last sentence.

Preface, ninth paragraph

Changed “science should be based” to “we should base science” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, ninth paragraph

Changed “the timeless concept of deciding well” to “this timeless concept” in the fourth sentence.

Changed “this timeless concept” to “it” in the fourth sentence.

Chapter 1, Two Useful Views of Deciding Well, first four paragraphs

“Useful worldviews are views of the world that help us achieve our *ends* (goals). We may group useful worldviews into two types based on whether their ends are *temporal* or *timeless*.⁴ Temporal ends are goals that concern events. Timeless ends are goals that concern processes. Winning a basketball game is a temporal end. Playing basketball well is a timeless end. The difference between a temporal end and a timeless end is the difference between arriving at a destination and heading in a direction.

“We base useful views of the world on the concepts that define ends and *excellence in means*. From a temporal view, we base excellence in means on what we know and what we might learn that is useful for solving the problem at hand. We care about what we may learn that is useful for more than solving the problem at hand. From a timeless view, we base excellence in means on what we know and on what we may learn that is useful in pursuing our timeless end. We care about what we may learn that is useful for more than solving the problem at hand.

“We can see this difference in the temporal and timeless views of deciding well. From the temporal view of deciding well, excellence in means is excellence in solving temporal problems. We commonly call excellence in solving temporal problems *efficiency*. To decide well is to decide efficiently. A formal decision *event* consists of (1) formulating alternatives; (2) evaluating alternatives; (3) choosing an alternative; and (4) implementing the chosen alternative. To decide well is to decide perfectly.⁵ In modern economic terms, our actions reveal our preferences.

“From the timeless view of deciding well, excellence in means is not only excellence in solving temporal problems but also excellence in choosing temporal problems to solve. We commonly call excellence in choosing temporal problems to solve *effectiveness*. To decide well is to decide both efficiently and effectively. A formal decision *process* is the endlessly repeating cycle of (1) finding a problem to solve based on the timeless end of the process; (2) formulating alternative solutions to the chosen problem; (3) evaluating these alternatives; (4) choosing an alternative; (5) implementing the chosen alternative; and (6) learning from the experience. To decide well is *not* to decide perfectly.⁶ We make mistakes. We learn from our mistakes. Waste is a regrettable by-product of learning-by-doing.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Useful worldviews are views of the world that help us achieve our *ends* (goals). We may group useful worldviews into two types based on whether their ends are *temporal* or *timeless*.⁴ Temporal ends are goals that concern events; timeless ends are goals that concern processes. Winning a basketball game is a temporal end; playing basketball well is a timeless end. Living today well is a temporal end; living well is a timeless end. Again, temporal ends concern events; timeless ends concern processes.”

“Temporal and timeless useful worldviews differ in their concepts of *excellence in means* as well as in their concept of ends. From the temporal view, excellence in means is excellence in solving problems. Modern economists commonly call excellence in solving problems *efficiency*. To decide well is to decide efficiently.

“From a timeless view, excellence in means is both excellence in solving temporal problems and excellence in choosing temporal problems to solve. Managers commonly call excellence in solving temporal problems *efficiency* and excellence in choosing temporal problems to solve *effectiveness*. To decide well is to decide both efficiently and effectively.

“We base the temporal concept of excellence in means on what we know and on what we might learn that is useful in solving the problem at hand. In contrast, we base the timeless concept of excellence in means on what we know and on what we may learn that is useful in pursuing our timeless end. We can see this difference in formal decision-making. From the temporal view, a formal decision *event* consists of (1) formulating alternatives; (2) evaluating alternatives; (3) choosing an alternative; and (4) implementing the chosen alternative. To decide well is to decide perfectly.⁵ In modern economic terms, our actions reveal our preferences.

“From the timeless view, a formal decision *process* is the endlessly repeating cycle of (1) finding a problem to solve based on the timeless end of the process; (2) formulating alternative solutions to the chosen problem; (3) evaluating these alternatives; (4) choosing an alternative; (5) implementing the chosen alternative; and (6) learning from the experience. To decide well is *not* to decide perfectly.⁶ We make mistakes. We learn from our mistakes. Waste is a regrettable by-product of learning-by-doing.”

Chapter 1, Two Useful Views of Deciding Well, last two paragraphs

Merged the last two paragraphs.

Chapter 1, The EOQ/RTS Example, fifth paragraph

Changed “the most efficient choice is not always the best choice” to “the best choice is not always the (temporally) efficient choice” in the first sentence.

Chapter 2, Introduction, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**common** maxim” to “**modern** maxim” in the last sentence.

Chapter 2, *Alternatives to Living Well*, first paragraph, last sentence

“**In short, it makes them vulnerable to acting compulsively.**”

was deleted.

Chapter 2, *Alternatives to Living Well*, last paragraph, last three sentences

Changed “(joy/pleasure-in-being)” to “(**desire for** joy/pleasure-in-being)” and “(pleasure/pleasure-in-acting)” to “(**desire for** pleasure/pleasure-in-acting)” in the fourth sentence.

“In the Taoist tradition, living well is a matter of **maintaining a dynamic balance of yin (joy/pleasure-in-being) and yang (pleasure/pleasure-in-acting). Those who pursue pleasure have too much yang. Those who pursue nothing have too much yin.**”

were changed to:

“In the Taoist tradition, living well is a matter of balancing *yin* and *yang*. **In this context, *yin* is the desire for joy/pleasure-in-being; *yang* is the desire for pleasure/pleasure-in-acting. When we have too much *yang*, we pursue pleasure too much. When we have too much *yin*, we pursue joy too much. When *yin* and *yang* are in balance, we pursue the virtuous circle of pleasure and joy.**”

Chapter 2, *Human Capital, Work, and Leisure*, last paragraph, end

Added the sentence:

“**In religious terms, finding our true calling is a blessing.**”

Chapter 2, *Trade*, first paragraph, footnote

Changed “**As**” to “**From the temporal view of modern economics, as**” in the second sentence.

Changed “**More accurately, they**” to “**In contrast, from the timeless view of deciding well, commercial organizations**” in the second sentence.

Chapter 3, *The Curious End of Believing Well*, third paragraph

Changed “**our system of** concepts” to “**the concepts underlying our beliefs**” in the second sentence.

Chapter 3, *The Curious End of Believing Well*, fourth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “reduce our sensations to **words**” to “reduce our sensations to **concepts**” in the second sentence.

Chapter 3, The Curious End of Believing Well, sixth paragraph

Changed “these and more” to “these **things** and more” in the last sentence.

Chapter 3, The Curious End of Believing Well, ninth paragraph, fourth and fifth sentences

“This is not a rational process. **It** is a religious one.”

were changed to:

“This is not a rational process; **it** is a religious one.”

Chapter 3, *The Ring of Truth*, third paragraph

“**This** belief **is consistent** with the timeless concepts of pleasure (**pleasure-in-acting**) and joy (**pleasure-in-being**) **put forth in the second section**: *beauty is the quality of objects whose contemplation yields not only pleasure but also the joy that comes from improving how well our beliefs fit together into a coherent whole.*”

were changed to:

“**Combining this ancient, poetic** belief with the timeless concepts of pleasure and joy **yields a timeless concept of beauty**: *beauty is the quality of objects whose contemplation yields not only pleasure but also the joy that comes from improving how well our beliefs fit together into a coherent whole.*”

Chapter 3, *The Ring of Truth*, last paragraph

Changed “**B**eauty” to “**b**eauty” in the first sentence.

Changed “**F**rom the timeless view” to “**In contrast, f**rom the timeless view” in the first sentence.

Chapter 3, Refining Everyday Thinking, fifth paragraph

Added “(**S₂ ∩ S₃**)” to the first sentence.

Chapter 3, Refining Deciding Well, second paragraph, last footnote

Changed “we” to “we, **as a collective**,” in the last sentence.

Chapter 3, *Refining Stories*, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “it **often** causes” to “it causes” in the fourth sentence.

Deleted the seventh sentence: “**When we act foolishly in our private lives, the results are often pathetic but rarely tragic.**”

Deleted the ninth sentence: “**When they act foolishly, the results are often tragic.**”

Chapter 3, *Refining Stories*, fifth paragraph

Changed “efficiency” to “**the temporal concept of** efficiency” in the fourth sentence.

Changed “**We also**” to “**Further, we**” in the fourth sentence.

Changed “caves” to “**tribal** caves” in the last sentence.

Chapter 3, *Recursive Failures*, first paragraph, footnote

Changed “intellectuals” to “**modern** intellectuals” in the first sentence.

Chapter 4, *Sovereignty*, first paragraph

Changed “group” to “group **of intelligent beings**” in the first sentence.

Chapter 4, *Sovereignty*, third paragraph

Changed “**had to maintain**” to “**needed**” (2 occurrences) and “**have to maintain**” to “**need**” in the second sentence.

Changed “**must have**” to “**need**” in the third sentence.

Changed “The need **for this coercive power**” to “This need” in the last sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, second paragraph

Changed “All intelligent **life** has” to “All intelligent **beings** have” in the second sentence of the sovereign rights story.

Chapter 4, *The Sovereign Story of Timeless Science*, last paragraph

Changed “**the timeless** view” to “view **of timeless science**” in the sixth sentence.

Changed “built **along these lines**” back to “so built” in the last sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, last paragraph, first footnote

Changed “this most clearly” to “this **corruption** most clearly” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *Control the Money Supply Passively*, first paragraph, footnote

Changed “this power” to “the power to expand the money supply” in the first sentence.

Chapter 4, *Promote Savings for Welfare*, last paragraph, footnote

Deleted the first sentence: “From the timeless view of deciding well, we owe a debt to those who created the knowledge that we use at no cost.”

Changed “a universal welfare savings plan and highly progressive taxation” to “the universal welfare savings plan and highly progressive taxation solution” in the last sentence.

Appendix A, Introduction, first paragraph

Changed “unjust” to “unjust, unethical, or unwise” in the fifth sentence.

Appendix A, The Farther Reaches of Living Well, second paragraph

Changed “Maslow” to “He” in the second sentence.

Appendix A, The Farther Reaches of Living Well, fourth paragraph

Changed “the study of” to “identifying” in the second sentence.

Changed “Maslow” to “He” in the last sentence.

Appendix A, *Schweitzer's Universal Spiritual Need*, second paragraph

“Schweitzer saw two means of satisfying our need for mystical oneness. *Ethical mysticism* is the union that comes through embracing the world and life. *Magical mysticism* is the union of self with the infinite Being that comes from renouncing the world and life.³ In response to the suffering of others, ethical mysticism evokes sympathy; magical mysticism evokes detachment.”

was changed to:

“Schweitzer saw two means of satisfying the need for mystical oneness, *ethical and magical mysticism*. *Ethical mysticism* is the union that comes through embracing the world and life. *Magical mysticism* is the union of self with the infinite Being that comes from renouncing the world and life.³ We can see the difference between these two means to mystical oneness in how people respond to the suffering of others. *Ethical mysticism* calls for us to feel the suffering of others, which encourages us to help those who suffer. *Magical mysticism* calls for us to deny the reality of the world

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

that we are trying to leave behind. In response to suffering, ethical mysticism evokes sympathy; magical mysticism evokes detachment.”

Appendix A, *Schweitzer's Universal Spiritual Need*, third paragraph, last two sentences

“When magical mysticism prevails, worldly affairs suffer. When the ethical system prevails, magical mysticism loses favor.”

were changed to:

“When magical mysticism prevails, worldly affairs suffer; and when the ethical system prevails, magical mysticism loses favor.”

Appendix A, *Heroic Death*, last paragraph

Changed “The worst” to “The worst **leaders**” in the fifth sentence.

Changed “**Those**” to “**Leaders**” in the last sentence.

Appendix B, *Smoothing Flows*, second paragraph, last two sentences

“Unlike other batch systems, managers can **control its operational complexity by varying** the tightness of its flexible links. **They do so** by adding or removing WIP **from these links.**”

was changed to:

“Unlike other batch systems, managers can vary the tightness of its flexible links by adding or removing WIP. **This allows managers to stretch the control system to accommodate complex problems without increasing complexity at the team member level.**”

Appendix B, *Smoothing Flows*, last six paragraphs

“**Satisfying customer needs ever better creates complex production problems. Managers devise and put into place crude solutions to these problems based on their ideas of how best to fold in lines. These crude solutions create uneven flow. Managers buffer most of this uneven flow by adding WIP inventory to flexible links.**”

“**If the managers add too much WIP, there will be no workflow problems to solve. Without a problem to solve there can be no improvement. Managers correct this by removing WIP from flexible links.**”

“**If the managers add too little WIP, the resulting flood of workflow problems overwhelms the team. Managers correct this by adding WIP to flexible links.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“If the managers add the right amount of WIP, there will be just enough problems for the team to solve while they produce. Solving these problems smoothes the uneven flow and embeds useful knowledge into procedures, machine design, trading relations, and product design.

“Once things are running smoothly, managers remove WIP from one or more flexible links. This uncovers problems that create uneven flow. The team solves these problems.

“Managers continue the process of removing WIP from flexible links until the team can find no more problems that it is able to solve.”

were changed to:

“Managers increase WIP to accommodate such complex problems as folding in parts of the line or removing scarce resources from the process. They then begin reducing WIP. This creates uneven flow problems. The team adapts to the stress of uneven flow by finding and solving problems that cause uneven flow. Too little stress yields little new knowledge; too much stress overwhelms the team; the right amount of stress yields the greatest new knowledge without burning out the team. Managers continue reducing WIP until the team can find no more problems that the team is able to solve.”

Appendix B, *Inducing Knowledge*, second paragraph

Changed “fails” to “fails (flows unevenly)” in the last sentence.

Changed “the process” to “it” in the last sentence (2 occurrences).

Appendix B, *Inducing Knowledge*, third paragraph

Changed “scarce resources” to “scarce resources (machines, labor, or time)” and “complex process” to “line” in the last sentence.

Changed “the process” to “it” in the last sentence (2 occurrences).

Changes in Version 2008.09.04

Preface, third paragraph

Changed “want to know” to “need to know in order to believe well” in the second sentence.

Changed “want to know” to “need to know” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, fourth paragraph

Changed “want to know” to “need to know in order to believe well” in the first sentence.

Preface, seventh paragraph

Changed “the good” to “wisdom” in all (3 occurrences).

Preface, ninth paragraph

Changed “this timeless concept” to “the timeless concept of deciding well” in the fifth sentence.

Changed “it” to “the timeless concept of deciding well” in the sixth sentence.

Chapter 1, Two Views of Deciding Well, second paragraph

Deleted the phrase: “as well as in their concept of ends” from the first sentence.

Chapter 2, Introduction, title

Changed title to “Tools for Living Well.”

Chapter 2, Tools for Living Well, third paragraph

Changed “tools” to “intellectual tools” in the first sentence (2 occurrences).

Changed “ones” to “tools” in the second sentence.

Chapter 3, Introduction

Merged into **The Curious End of Believing Well**.

Chapter 3, The Curious End of Believing Well, new second paragraph

Changed “is” to “ought to be” in the first sentence.

Chapter 3, The Curious End of Believing Well, new fifth paragraph

Changed “these questions usually involves claims to values that transcend the problem at hand” to “the last two questions usually involves claims to values” in the last sentence.

Chapter 3, Refining Everyday Thinking, second to last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “the ring of Truth rather than the Truth *per se*” to “the ring of Truth (**Beauty**) rather than the Truth **itself**” in the first sentence.

Chapter 4, Introduction

Merged into **Sovereignty**.

Chapter 4, Sovereignty, new first paragraph, first sentence

“Governing **any group of intelligent beings living or working together** is a matter of managing rights and responsibilities.”

was to:

“**From the timeless view of deciding well**, governing **well** is a matter of managing rights and responsibilities **well**.”

Chapter 4, Sovereignty, last paragraph

Changed “holder” to “holders” in the first sentence.

Chapter 4, *The Explicit Experiment*, first paragraph

Changed “sovereign story” to “sovereign **rights** story” in the first sentence (2 occurrences).

Chapter 4, *The Explicit Experiment*, fifth paragraph

Changed “**citizens**” to “**the people of the United States**” in the first sentence.

Chapter 4, *The Explicit Experiment*, last paragraph, footnote

Changed “the Russian Empire, Italy, and Germany into **full-blown** socialism” to “the Russian Empire **into international socialism**, or Italy and Germany into **national** socialism” in the first sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, title

Changed “**The**” to “**A**” in the title.

Chapter 4, *A Sovereign Story of Timeless Science*, first paragraph

Changed “sovereign story” to “sovereign **rights** story” in the first sentence.

Changed “sovereign stories” to “sovereign **rights** stories” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *A Sovereign Story of Timeless Science*, last paragraph

Changed “it” to “**this sovereign rights story**” in the fourth sentence.

Changed “sovereign story” to “sovereign **rights** story” in the first sentence of the first footnote.

Chapter 4, *Tax Well*, second paragraph, footnote

“¹⁴ **Modern examples of taxing decisions leading to major catastrophes include the failure of governments to consider the true costs of petroleum products. The foolishness of subsidizing petroleum fuel prices is obvious. Less obvious is the foolishness of the United States Congress not to consider the cost of maintaining world-wide order by threat of arms when determining taxes. Arrested world-wide development due to high fuel prices and the rise of petro-state dictators are far more “clear and present” dangers than the threat of man-made global warming.**”

was deleted.

Appendix A, *Balanced Excellence*, first paragraph

Changed “**Life-revering religions**” to “**Religions that help us revere life well**” in the first sentence.

Changes in Version 2008.09.06

Preface, third paragraph

Changed “need to know” to “need to know **in order to believe well**” in the last sentence.

Preface, ninth paragraph, third through last sentences

“I go on to **apply this distinction to** deciding well. In the **second section**, I apply **the timeless concept of deciding well** to the timeless end of living well. **In the third, I apply the timeless concept of deciding well to the timeless end of** believing well. **In the last section, I apply the timeless concept of deciding well to the timeless end of** governing well. To change the way we decide is to change the way we choose to live, choose to believe, and choose to govern and be governed.”

were changed to:

“I go on to **develop a timeless concept of** deciding well. In the **balance of the work**, I apply **this concept** to the ends of living well, believing well, **and** governing well. To

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

change the way we decide is to change the way we choose to live, choose to believe, and choose to govern and be governed.”

Chapter 1, The Need for Timeless Views, last paragraph

Changed “timeless view” to “timeless view of **deciding well**” in the third sentence.

Chapter 2, Consumption, first paragraph

“Consuming is the process of using wealth to achieve our ends. From the temporal view of modern economics, **consuming** is the **process** of **using wealth to** satisfy our wants. Hence, winning a fortune in the lottery is always good. From the timeless view of deciding well, **consuming** is the **process** of **using wealth to live** well. Hence, winning a fortune in the lottery can be bad if **the winner is** heading down a dark path. Understanding this difference calls for a deeper understanding of pleasure and pain.”

was changed to:

“Consuming is the process of using wealth to achieve our ends. From the temporal view of modern economics, **this end** is the **temporal end** of **satisfying** our wants. **Our actions reveal our preferences**. Hence, winning a fortune in the lottery is always good **for us**. From the timeless view of deciding well, **this end** is the **timeless end** of **living** well. **We make mistakes**. Hence, winning a fortune in the lottery can be bad **for us** if **we are** heading down a dark path. Understanding this difference calls for a deeper understanding of pleasure and pain.”

Chapter 2, *Pleasure and Pain*, first paragraph, first sentence

“Pleasure and pain are mental signals (**or absence of mental signals**) that help guide us to undertake good activities and avoid bad ones.”

was changed to:

“Pleasure and pain are mental signals² that help guide us to undertake good activities and avoid bad ones.”

² **This may include the absence of mental signals.**”

Chapter 2, *Wisdom*, first paragraph

Changed “moderate” to “**a moderate amount of**” in the last sentence.

Chapter 2, *Wisdom*, third paragraph

“Deprivation, which is the condition of having unsatisfied needs, **can** overwhelm wisdom. **It can impair perception, intuition, and reason through panic, delirium, and**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

illness. It can bias our perception and intuition. It can retard learning. It can cause strong emotions or appetites, which can lead to the loss of our ability to contain our emotions or appetites. We face a variety of potential vicious circles involving wisdom and deprivation. Collectively these form the cycle of poverty.”

was changed to:

“Deprivation, which is the condition of having unsatisfied needs, tends to overwhelm wisdom. It tends to bias our perception and intuition; cause strong emotions and appetites; retard learning; and, in cases of panic and delirium, impair perception, intuition, and reason. These tendencies create vicious circles of deprivation and deciding poorly. Together these circles form the cycle of poverty.”

Chapter 2, *Alternatives to Living Well*, second paragraph

Changed “vicious cycle of poor decision-making and deprivation, which we commonly call poverty” to “vicious cycle of poverty” in the last sentence.

Merged paragraph with the preceding paragraph.

Chapter 2, *Three Mistakes*, first paragraph

Changed “involved” to “involves” in the last sentence.

Chapter 2, *Three Mistakes*, last two paragraphs

“The third mistake is the belief that competition is the opposite of cooperation. When excellence calls for cooperation, promoting competition tends to promote cooperation. Consider competition in team sports: teamwork tends to rise with the closeness of the score.

“In business as in sports, competition tends to increase cooperation. Shoppers in the Soviet Union wasted billions of hours standing in lines. Many purchases involved standing in line three times: once to select an item, a second time to pay for it, and a third to collect it. Soviet shoppers endured this because they had no choice. In contrast, competition caused early twentieth-century American merchants to invent stores in which shoppers cooperate with merchants by collecting the items they want to buy. Such self-service stores save shoppers time and money.”

were changed to:

“The third mistake is the belief that competition is the opposite of cooperation. When excellence calls for cooperation, promoting competition tends to promote cooperation. Shoppers in the Soviet Union wasted billions of hours standing in lines. Many purchases involved standing in line three times: once to select an item, a second time to pay for it, and a third to collect it. Soviet shoppers endured this because they had no

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

choice. In contrast, competition caused early twentieth-century American merchants to invent stores in which shoppers cooperate with merchants by collecting the items they want to buy. Such self-service stores save shoppers time and money. **Some American merchants have recently taken this one step further by allowing customers to pay for their items in self-checkout lines.**”

Chapter 3, Recursive Failures, first paragraph

Added the following sentences before the last sentence:

“**Also consider the statement, “I can benefit by violating the trust others put in me.” If enough people use this story to guide their actions, everyone will soon put less trust in others.**”

Chapter 4, *The Explicit Experiment*, fourth paragraph

Changed “**puts forth**” to “**offers**” in the second sentence.

Chapter 4, *The Explicit Experiment*, last paragraph, footnote

Deleted the last sentence: “**The First Amendment has not stopped true believers in theistic justice or true believers in social justice from seeking to establish their religion as the state religion.**”

Changed “political experiment” to “**timeless** political experiment” in the new first sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, first paragraph

Moved fourth sentence back to the end of the paragraph.

Appendix A, *Deciding Beautifully*, first paragraph, last sentence

“***We ought to use only those tools that aim at the timeless end of revering life well.***”

was changed to:

“**We ought to use only those tools that aim at the timeless end of revering life well.**”

Changes in Version 2008.09.09

Preface, ninth paragraph, second, third, and fourth sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “concept to the **ends** of” to “concept to the **pursuits** of” in the fourth sentence.

Chapter 1, The Need for Timeless Views, last paragraph, end

Added the footnote: “**For more on the Toyota production system, see Appendix A.**”

Chapter 1, The EOQ/RTS Example, fourth paragraph

Changed “where” to “in which” in the sixth sentence.

Chapter 3, The Curious End of Believing Well, sixth paragraph, footnote

Changed “**theology** (**knowledge** of the divine)” to “**theism** (**belief in the existence** of the divine)” in the third sentence.

Changed “**theology**” to “**theism**” in the last sentence.

Chapter 3, The Curious End of Believing Well, fourteenth paragraph, last footnote

Changed “Appendix **A**” to “Appendix **B**” in the last sentence.

Chapter 3, *Trading Failures*, first paragraph, last footnote

“²³ **For more on the subject of smoothing flow, see Appendix B.**”

was deleted.

Chapter 4, *The Explicit Experiment*, last paragraph, footnote

Changed “**theistic** justice” to “**theological** justice” in the last sentence.

Changed “**theistic** justice” to “**theological** justice” in the second sentence of the footnote.

Appendices A & B

Switched order of appendices.

Appendix B, *Schweitzer's Universal Spiritual Need*, third paragraph

“Magical mysticism **lies beyond ethics. Where ethics concerns how people live and work together, magical mysticism concerns how a person links directly with the infinite Being. The world and life negation at the core of magical mysticism conflicts with this ethical system. When magical mysticism prevails, worldly affairs suffer; and when the ethical system prevails, magical mysticism loses favor.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was appended to the next paragraph and changed to:

“Magical mysticism concerns how **people** link directly with the infinite Being.”

Changes in Version 2008.09.11

Chapter 2, Tools for Living Well, first paragraph

Changed “help us **to** pursue” to “help us pursue” in the first and last sentences.

Chapter 3, The Curious End of Deciding Well, first paragraph

Changed “help us **to** pursue” to “help us pursue” in the first and last sentences.

Chapter 3, The Curious End of Deciding Well, tenth paragraph

Changed “the Truth, **Justice, and Beauty**” to “the Truth” in the first sentence.

Chapter 3, *The Elephant in the Room*, third paragraph

Changed “**our** religious impulse **to seek the Creator**” to “**this** religious impulse” in the last sentence.

Chapter 3, Refining Everyday Thinking, second to last paragraph

Changed “the ring of Truth (**Beauty**)” back to “the ring of Truth” in the first sentence.

Chapter 3, Refining Deciding Well, second paragraph, first footnote

Changed “**science**” to “**believing well**” in the last sentence.

Chapter 3, Recursive Failures, first paragraph

Changed “**these** stories” to “the stories **we use to guide our actions**” in the last sentence.

Chapter 4, Sovereignty, first paragraph

Changed “help us **to** pursue” to “help us pursue” in the first and last sentences.

Chapter 4, *The Sovereign Story of Timeless Science*, last paragraph

Changed “justly **ever more wisely**” to “**ever more** justly, **ever more wisely**, and **ever more truly**” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *Judge Interventions*, last paragraph

Changed “wise” to “profitable” in the last sentence.

Appendix B, *Heroic Death*, third paragraph

Changed “worst leaders” back to “worst” in the fifth sentence.

Appendix B, *Deciding Beautifully*, first paragraph, last sentence

“We also ought to use only those tools that aim at the highest form of justice that we can imagine. We ought to use only those tools that aim at the timeless end of revering life well.”

were changed to:

“We also ought to use only those tools that help us pursue the highest justice we can imagine, only those tools that help us revere life well.”

Changes in Version 2008.09.13

Preface, second paragraph

Changed “theory” to “theory of deciding well” in the sixth sentence.

Preface, ninth paragraph

Changed “this concept” to “this timeless concept” in the fourth sentence.

Chapter 1, *Two Views of Deciding Well*, second paragraph

Changed “commonly call” to “call” in the third sentence.

Chapter 1, *Two Views of Deciding Well*, third paragraph

Changed “Managers commonly call” to “Good managers call” in the second sentence.

Chapter 1, *The Need for Timeless Views*, last paragraph

Changed “Production team” to “Toyota production team” and “what happens at Toyota” to “what they do” in the fourth sentence.

Changed “residents of our age” to “residents of our modern age” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, The Curious End of Believing Well, last two sentences of the thirteenth paragraph and the fourteenth paragraph

“In theory, we can learn more about Justice by considering how treating others well helps us to pursue the Good and the Truth. However, when we try to learn more about Justice by considering this, we find ourselves continuously returning to the endless pursuits of the Good and the Truth; we find ourselves in a mental hall of mirrors.

“Twentieth-century philosopher John Rawls provides us with a way of putting our ignorance to good use. He asks us to imagine what we should⁶ choose if we were ignorant of the circumstances of our birth.⁷ For this imagined original position of ignorance to produce a *completely just* timeless end, we must consider what timeless end we should want to guide intelligent life if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of what species we will be and into what era we will be born. Under these conditions, we should want all intelligent life to make the best use of knowledge in the pursuit of a good life for all. In other words, we should want all intelligent life to revere life well.⁸ We pursue this timeless end by deciding well.”

“⁹ This expansive concept of justice does more than help us satisfy our need to link or re-link with something greater than ourselves. We need other forms of life to live well. For example, we need microorganisms to sustain not only our environment but also our bodies. Further, we can learn from virtually every other form of life. For example, we can learn about composite materials from the fangs of sandworms and about biochemical processes from microorganisms living in extreme environments. For more on the subject of revering life well, see Appendix B.”

were moved to the end of *The Elephant in the Room* and changed to:

“We seek to know this infinitely large elephant well by deciding well. This calls for pursuing the boundless factors of deciding well. When we try to analyze these various pursuits, we quickly discover that we are in a mental hall of mirrors, from which our tried and true techniques cannot help us escape.

“Twentieth-century philosopher John Rawls provides us with a technique that can help us think our way out of this mental hall of mirrors. He asks us to imagine what we should⁶ choose if we were ignorant of the circumstances of our birth.⁷ For this imagined original position of ignorance to produce a *completely just* timeless end, we must consider what timeless end we should want to guide intelligent life if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of what species we will be and into what era we will be born. From behind this veil of ignorance, we should want all intelligent life to revere life well.⁸ We pursue this timeless end by deciding well.”

“⁹ To revere life well is to pursue the timeless end of a good life for all. This not only helps us satisfy our need to link or re-link with something greater than ourselves, but

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

also helps us pursue the timeless end of living well. We need other forms of life to live well. For example, we need microorganisms to sustain not only our environment but also our bodies. Further, we can learn from virtually every other form of life. For example, we can learn about composite materials from the fangs of sandworms and about biochemical processes from microorganisms living in extreme environments. For more on the subject of revering life well, see Appendix B.”

Chapter 3, The Curious End of Believing Well, thirteenth paragraph and new fourteenth paragraphs

Merged these two paragraphs.

Chapter 3, Recursive Failures, first paragraph

Changed “This two-way relation” to “This two-way relation between the stories that we use to guide our actions and reality” in the last sentence.

Chapter 3, Recursive Failures, second paragraph

Changed “our potential” to “the potential” in the last sentence.

Chapter 3, Recursive Failures, third and fourth paragraphs

“To reduce this potential for catastrophe, we need to base the stories that we use to guide our actions on timeless elements. Chief among these are (1) the problem of induction, (2) the inexhaustibility of knowledge, and (3) our religious need to become part of something infinitely greater than ourselves. Excluding these elements greatly increases our risk of suffering environmental disasters, financial collapses, religious strife, and other catastrophes. We can aspire to be wise by including these elements or we can pretend to be certain by excluding them.

“A good example of pretending to be certain is the modern economic national accounting system, which uses a temporal rather than a timeless concept of wealth. Imagine a pill that makes people decide better. Releasing this product would change how people decide to live. Some parts of the economy would shrink and other parts would grow. Resources would flow from the shrinking parts to the growing ones. The immediate effect would be a fall in aggregate production and a rise in unemployment. Modern economic science would portray one of the greatest advances in human history as a disaster.”

were changed to:

“We can aspire to be wise by using timeless stories to find temporal problems or pretend to be certain by using temporal stories to find problems. A good example of pretending to be certain is the modern economic national accounting system. Imagine a pill that makes people decide better. Releasing this product would change how

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

people decide to live. Some parts of the economy would shrink and other parts would grow. Resources would flow from the shrinking parts to the growing ones. The immediate effect would be a fall in aggregate production and a rise in unemployment. Modern economic science would portray one of the greatest advances in human history as a disaster.”

Chapter 4, *The Explicit Experiment*, second paragraph

Changed “an explicit proposition to be tested” to “a timeless experiment” in the fourth sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, last paragraph, last footnote

Changed “see some evidence” to “find evidence” in the first sentence.

Changes in Version 2008.09.15

Chapter 1, *Two Views of Deciding Well*, fifth paragraph, last sentence

“Waste is a regrettable by-product of learning-by-doing.”

was changed to:

“Deciding well and our understanding of deciding well co-evolve.”

Chapter 2, *Tools for Living Well*, first paragraph

Changed “pursue the timeless end of deciding well” to “decide well” in the first sentence.

Changed “pursue the timeless end of living well” to “live well” in the last sentence.

Chapter 2, *Wisdom*, first paragraph, first sentence

“The timeless end of life is living well.”

was deleted.

Chapter 3, *The Curious End of Deciding Well*, first paragraph

Changed “pursue the timeless ends of deciding well and living well” to “decide well and live well” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**pursue the timeless end of believing well**” to “**believe well**” in the last sentence.

Chapter 3, *The Curious End of Deciding Well*, fifth paragraph

Changed “**the last two** questions” to “**these** questions” in the last sentence.

Chapter 3, *The Curious End of Deciding Well*, tenth and eleventh paragraphs

Merged these two paragraphs.

Chapter 3, *The Curious End of Believing Well*, last paragraph

Changed “**the timeless end of** deciding well” to “deciding well” in the first sentence.

Chapter 3, *The Ring of Truth*, first paragraph

Changed “**timeless end** of believing well” to “**endless pursuit** of believing well” in the first sentence.

Chapter 3, *The Elephant in the Room*, fifth paragraph

“**We seek to know this infinitely large elephant well by deciding well. This** calls for pursuing the boundless factors of deciding well. When we try to analyze these various pursuits, we quickly discover that we are in a mental hall of mirrors, from which our tried and true techniques cannot help us escape.”

was changed to:

“**Again, the endless pursuit of believing well** calls for pursuing **all of** the boundless factors of deciding well. When we try to analyze these various pursuits, we quickly discover that we are in a mental hall of mirrors, from which our tried and true techniques cannot help us escape. **When we try to learn more about one pursuit by analyzing the other pursuits, we keep returning to our starting point.**”

Chapter 3, *The Elephant in the Room*, last paragraph

Changed “**deciding well**” to “**finding and solving beautiful problems**” in the last sentence.

Chapter 3, *Refining Stories*, fifth paragraph, last two sentences

“**The timeless end of** deciding well calls for us to learn. **It** calls for us to leave the tribal caves of our ancestors.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Deciding well calls for us to learn; it calls for us to leave the tribal caves of our ancestors.”

Chapter 3, A Crude Look at the Whole, third paragraph

Changed “progress toward the timeless end of revering life well” to “revering life well” in the last sentence.

Chapter 3, Conclusion, first paragraph, first sentence

“This section applied the timeless concept of deciding well to the timeless end of believing well.”

was deleted.

Chapter 3, Conclusion, second paragraph

Changed “The timeless end of believing well” to “Deciding well” in the first sentence.

Chapter 4, Sovereignty, first paragraph

Changed “pursue the timeless ends of deciding well, living well, and believing well” to “decide well, live well, and believe well” in the first sentence.

Changed “pursue the timeless end of governing well” to “govern well” in the last sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, second paragraph

Changed “pursue the timeless end of deciding well” to “decide well” in the first sentence of the sovereign story.

Changed “to decide well” to “decide well” in the last sentence of the sovereign story.

Appendix B, Deciding Beautifully, first paragraph

Changed “temporal ends” to “problems” in the third and seventh sentences.

Changes in Version 2008.09.16

Chapter 1, Two Views of Deciding Well, second paragraph

Changed “the temporal view” to “a temporal view” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Two Views of Deciding Well, third paragraph

Changed “the timeless view” to “a timeless view” in the first sentence.

Chapter 1, Two Views of Deciding Well, fourth paragraph

Changed “the temporal view” to “a temporal view” in the third sentence.

Chapter 1, Two Views of Deciding Well, fifth paragraph

Changed “the timeless view” to “a timeless view” in the first sentence.

Chapter 1, The EOQ/RTS Example, first paragraph

Changed “the timeless view” to “a timeless view” in the first sentence.

Chapter 2, *Pleasure and Pain*, sixth paragraph, footnote

Added the sentence: “Note that this general definition can accommodate such modern theories as epigenetic development.”

Chapter 2, *Three Mistakes*, first paragraph,

“Three common mistakes hinder the improvement of trade. The first is the belief that we cannot in fact improve the means of trade. This belief tends to blind us to better means of trade. This blindness led John Maynard Keynes to see the slowness of the price of labor to fall in response to a fall in the demand for labor (“sticky wages”) as a problem to work around rather than a problem to solve. It also led most Western experts to see the Toyota system as a set of techniques rather than as a means of creating techniques that involves paying workers not only for their skilled hands but also for their trained minds.”

was changed to:

“Three common mistakes tend to blind us to better means of trade. The first is the belief that we cannot improve the means of trade. This belief led John Maynard Keynes to see the slowness of the price of labor to fall in response to a fall in the demand for labor (“sticky wages”) as a problem to work around rather than a problem to solve. It also led most Western experts to see the Toyota system as a set of techniques rather than as a means of creating techniques that involves paying workers not only for their skilled hands but also for their trained minds. The belief that we cannot improve the means of trade tends to blind us to better means of trade.”

Chapter 2, Profit, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Profit is the expected return on deciding well.⁶ We live well by deciding well. We ought to be entrepreneurs in the business of life.”

“We should never use this timeless concept of profit for the temporal task of assessing the quality of decision-making. Paying \$10 for a lottery ticket that has a certain expected value of \$100 is wise regardless of the outcome. Conversely, paying \$100 for a lottery ticket that has a certain expected value of \$10 is foolish regardless of the outcome. Temporal profits are not always the result of deciding well and temporal losses are not always the result of deciding poorly. To attribute temporal profits solely to good decision-making or temporal losses solely to poor decision-making is foolish.”

was changed to:

“Profit is the value of acting. From the timeless view of deciding well, profit is the expected return on a decision.⁶ Given the inexhaustibility of knowledge, we can never be certain of the value of what we expect to learn. When we try to measure timeless profit, we must choose whether to consider learning. We can either aspire to be wise by considering learning or pretend to be certain by ignoring it.”

“In contrast, temporal profit is the actual return. Actual returns include the return on luck. Paying \$10 for a lottery ticket that has a certain expected value of \$100 is wise regardless of the outcome. Conversely, paying \$100 for a lottery ticket that has a certain expected value of \$10 is foolish regardless of the outcome. To attribute actual profits solely to good decision-making or actual losses solely to poor decision-making is foolish.”

Chapter 3, The Curious End of Believing Well, fifth paragraph

Changed “the timeless view” to “the timeless view of believing well” in the first sentence.

Chapter 3, The Curious End of Believing Well, seventh paragraph

Changed “the timeless view” to “the timeless view of believing well” in the first sentence.

Chapter 3, *The Ring of Truth*, last paragraph

Changed “the modern view” to “a modern view” in the first sentence.

Changed “the timeless view” to “a timeless view” in the first sentence.

Chapter 3, Refining Everyday Thinking, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “the timeless view of **deciding** well” to “the timeless view of **believing** well” in the first sentence.

Chapter 3, *The Elephant in the Room*, last paragraph, last sentence

“**We pursue this timeless end by finding and solving beautiful problems.**”

was deleted.

Chapter 4, *Tax Well*, first paragraph

Changed “**the** temporal view” to “**a** temporal view” in the second sentence.

Chapter 4, *Tax Well*, second paragraph

Changed “**the** timeless view” to “**a** timeless view” in the first sentence.

Chapter 4, *Promote Savings for Welfare*, second paragraph

Changed “Governments **s** best ensure” to “Government best ensures” in the second sentence.

Changes in Version 2008.09.20

Preface, second paragraph

“I wanted more than these three rules. **I wanted a theory of deciding well.** I had learned many analytical tools in business school. I knew that these tools could lead me astray by boxing me in with assumptions. I wanted **a theory** to help me know when the tools that I used to **guide my actions** were leading me astray. I have since learned that **my wish for a theory of deciding well was foolish. Rather than a theory of deciding well, I ought to have wished for a science of deciding well. I ought to have wished for a method of weeding out members of the set of theories that we use to guide our actions.**”

was changed to:

“I wanted **something** more **coherent and complete** than these three rules. I had learned many analytical tools in business school. I knew that these tools could lead me astray by boxing me in with assumptions. I wanted **something** to help me know when analytical tools were leading me astray. I have since learned that I ought to have **wanted a science of deciding well, by which I mean** a method of weeding out members of the set of stories that we use to guide our actions.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, third paragraph

Changed “**wish**” to “**desire**” in the first sentence.

Chapter 1, The Need for Timeless Views, last paragraph, second footnote

Moved footnote to the end of the previous section, **The EOQ/RTS Example**.

Chapter 2, *Pleasure and Pain*, first paragraph, footnote

Added the sentence: “**For example, the absence of the signals that our brains interpret as pain when we should feel pain signals us that our nervous system is not working properly.**”

Chapter 3, The Curious End of Believing Well, ninth paragraph, last four sentences

“In sharp contrast, Aristotle **called on us to refine our beliefs using his tool kit for refining beliefs, which we call Aristotelian logic. Further, he** split the study of nature and motion, which he called physics, from the study of first causes and principles, which he variously called wisdom, first philosophy, or theology. In modern terms, **Aristotle** split science from metaphysics. His approach is *rational*, not *wise*.”

were changed to:

“In sharp contrast, Aristotle split the study of nature and motion, which he called physics, from the study of first causes and principles, which he variously called wisdom, first philosophy, or theology. In modern terms, **he** split science from metaphysics. **He also provided us with a tool kit for refining beliefs, which we call Aristotelian logic.** His approach is *rational*, not *wise*.”

Chapter 3, *The Ring of Truth*, last paragraph

Changed “**to explain**” to “explain” in the first sentence.

Changed “**to decide well**” to “decide well” in the second sentence.

Changed “**to shock**” to “shock” in the seventh sentence.

Chapter 3, *The Elephant in the Room*, fifth paragraph

“Again, the endless pursuit of believing well calls for pursuing **all** of the boundless factors of deciding well. When we try to analyze these various pursuits, **we** quickly **discover** that we are in a mental hall of mirrors, from which our tried and true techniques cannot help us escape. **When we try to learn more about one pursuit by analyzing the other pursuits, we keep returning to our starting point.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“Again, the endless pursuit of believing well calls for **us to pursue** all of the boundless factors of deciding well. When we try to analyze these various pursuits, **we keep returning to our starting point. We quickly learn** that we are in a mental hall of mirrors from which our tried and true techniques cannot help us escape.”

Chapter 3, Refining Everyday Thinking, sixth paragraph

Added the sentence:

“*See White, Morton, A Philosophy of Culture: The Scope of Holistic Pragmatism, (Princeton, New Jersey: Princeton University Press, 2002).*”

Chapter 4, Tax Sovereign Story of Timeless Science, last paragraph

Changed “**and** ever more truly” to “ever more truly, **and ever more coherently**” in the third sentence.

Appendix B, Deciding Beautifully, first paragraph

Changed “the less the risk” to “the less **is** the risk” in the sixth sentence.

Changes in Version 2008.09.24

Preface, third paragraph,

“**If we base science on what we currently know, the concept of a science of deciding well is nonsense. If we cannot define deciding well, which includes defining our ultimate ends, there can be no science of deciding well. On the other hand, if we base science on what we need to know in order to believe well, there can be a science of deciding well.**”

was deleted.

Chapter 1, Two Views of Deciding Well, fourth paragraph

Changed “**our** timeless end” to “**a** timeless end” in the second sentence.

Chapter 1, Two Views of Deciding Well, fifth paragraph

Changed “problem to solve **based on**” to “temporal problem to solve **that appears to be in line with**” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, Profit, first paragraph

“Profit is the value of acting. From the timeless view of deciding well, profit is the expected return on a decision.⁶ Given the inexhaustibility of knowledge, we can never be certain of the value of what we expect to learn. When we try to measure timeless profit, we must choose whether to consider learning. We can either **aspire to be wise by considering learning or** pretend to be certain by ignoring it.

“**In contrast, temporal profit is the actual return.** Actual returns include the return on luck. Paying \$10 for a lottery ticket that has a certain expected value of \$100 is wise regardless of the outcome. Conversely, paying \$100 for a lottery ticket that has a certain expected value of \$10 is foolish regardless of the outcome. To attribute actual profits solely to good decision-making or actual losses solely to poor decision-making is foolish.”

was changed to:

“**In general, profit is the value of acting. From the temporal view of deciding well, profit is the return on an action or period of action.**⁶ From the timeless view of deciding well, profit is the expected return on a decision **or series of decisions.** Given the inexhaustibility of knowledge, we can never be certain of the value of what we **have learned or** expect to learn. When we try to measure profit, we must choose whether **or not** to consider learning. We can either pretend to be certain by ignoring **learning or aspire to be wise by including** it.”

“**Note that** actual returns include the return on luck. Paying \$10 for a lottery ticket that has a certain expected value of \$100 is wise regardless of the outcome. Conversely, paying \$100 for a lottery ticket that has a certain expected value of \$10 is foolish regardless of the outcome. To attribute actual profits solely to good decision-making or actual losses solely to poor decision-making is foolish.”

Chapter 3, *A Crude Look at the Whole*, first two paragraphs

“Imagine free people **seeking to decide** well. Deciding well creates economic stress, the need to reallocate resources. As the amount of **stress** rises, people **will** spend resources responding to it, which **will** leave them with fewer resources for **experimenting with new ways of** deciding well. **Stress will** tend toward a “natural” level. **People learn to thrive in winds and survive in gales of creative destruction.**

“**When it is practical to do so, people will use timeless tools to choose problems and temporal tools to solve these problems.** People **also** use timeless tools to help them identify the things they are likely to need in order to solve unexpected problems. **In the endless pursuit of deciding well, these factors are strategic assets.**”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Imagine free people pursuing the timeless end of deciding well. Deciding well creates economic stress, the need to reallocate resources. People do not pursue the timeless end of deciding well perfectly. They make mistakes. Poor decisions create greater stress. Some of this stress flows through the visible economic system as turbulence in the flow of economic resources, the symptoms of which include inflation²¹ and unemployment. As the amount of turbulence rises, people spend more resources responding to it, which leaves them fewer resources for deciding well in ways that create stress. If poor decisions only led to turbulence, turbulence would tend toward a “natural” level. However, poor decisions also embed mistakes into networks of knowledge-in-use. Over time, people pursuing the timeless end of deciding well release the stress embedded in these networks. These releases disrupt the “natural” level of turbulence.

“People pursuing the timeless end of deciding well use timeless tools to help them identify the things they are likely to need in order to solve unexpected problems. When it is practical to do so, they also use timeless tools to choose temporal problems and temporal tools to solve these problems. By pursuing the timeless end of deciding well, they learn to thrive in winds and survive in gales of creative destruction.”

“²¹ Turbulence wastes resources that would otherwise result in more goods and services. Inflation is the result of too much money chasing too few goods and services.”

Changes in Version 2008.09.30

The following changes were made after a review by Michael Lissack. It was clear from his comments that the structure needed work. The largest change was moving a large part of the first section of the third chapter to the first chapter. Another large change was adding an overview section at the end of the first chapter, which allowed the deletion of the somewhat tedious introductory sentences to the third and fourth sentences, as well as the final paragraph to the conclusion of the third chapter.

Preface, fourth paragraph

Changed “definite” to “*definite*” in the first sentence.

Preface, eighth paragraph,

“The essence of modernism is breaking the whole into parts in order to do something better. We see this process in science (reductionism), philosophy (analysis), and economics (the division of labor). The major disadvantage of breaking the whole into parts is forgetting to consider the whole, especially how we fit into the whole. Despite the fact that this knowledge, like definite knowledge of the transcendental number π , will remain forever beyond our grasp, we must not pass over it in silence. When we

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

expand the scope of the problems we face to the limits of imagination, a **timeless** structure emerges. **This structure can help us find better problems to solve.**”

was changed to:

“The essence of modernism is **the process of breaking an unmanageable** whole into **manageable** parts in order to **solve problems** better. We see this process in science (reductionism), philosophy (analysis), and economics (the division of labor). **A major danger** of **using this process** is forgetting to consider the whole, especially how we **may** fit into the whole. Despite the fact that knowledge **of the whole**, like definite knowledge of the transcendental number *pi*, will remain forever beyond our grasp, we must not pass over it in silence. When we expand the scope of the problems we face to the limits of imagination, a structure **of timeless values** emerges. **Knowledge of this structure can help us help us find better problems to solve.**”

Preface, ninth paragraph

Changed “**My target audience** for this work is people” to “**I wrote** this work **for** people” in the first sentence.

Changed “I **go on** to develop” to “**From this distinction**, I develop” in the second sentence.

Changed “concept” to “**decision-making** concept” in the third sentence.

Preface, tenth paragraph

Changed “terms and concepts” to “terms (**containers for meaning**) and concepts (**meanings**)” in the first sentence.

Chapter 1, Setting Words Aright, first paragraph

Changed “ends” to “ends (**goals**)” in the last sentence.

Chapter 1, Setting Words Right, second paragraph

Changed “a type” to “**one** type” in the first sentence.

Inserted the sentence, “**It is pattern of bits on a compact disc, not the compact disc, that is knowledge resource.**”, and a paragraph break after the second sentence.

Chapter 1, Setting Words Right, new third paragraph

Italicized “*in use*” and “*not yet in use*” in the first sentence.

Chapter 1, Setting Words Right, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “a type” to “one type” in the first sentence.

Added the following following subsection:

“A Holistic Approach to Deciding Well

Deciding is an activity subject to constraints. These constraints include such things as time, clarity of mind, and the quality of intellectual tools. Over countless generations, we have learned many ways of coping with these constraints. We have also learned many ways of thinking about how to cope with these constraints.

“One way of thinking about how we cope with these constraints is to classify the ways that we decide into deliberation (formal decision-making), decision-rules (rules-of-thumb/heuristic methods), and discipline (consciously formed habits). Deliberation is thorough but costly in time and other resources. Decision rules are less thorough but also less costly. Discipline is the least thorough, least costly, but most resistant to the harmful effects of deprivation. Deciding well is often a matter of knowing which of these three methods to use.

“Another way of thinking about how we cope with these constraints is to think deeply about how our mental models of the world mislead us. We normally study these failures on the level of our beliefs about the world. We can also study the failures of our mental models on the level of the concepts that underlie our beliefs.

“Yet another way of thinking about how we cope with these constraints is to think deeply about how we choose to frame (conceptualize) the world. Consider how we may choose to frame the political divide between classical and modern liberals in the United States. Both groups of liberals believe that we ought to have the freedom to choose what we want, provided that what we want does not constrain the right of others to choose what they want. However, the two groups differ in beliefs about what constraints our choices impose on others. To the classical liberal, these constraints include only those we might directly impose on others by force. To the modern liberal, these constraints include all constraints that keep our fellow citizens from deciding well enough to live decent lives. Economist Thomas Sowell sees this difference in beliefs in terms of how people view constraints on deciding well. From this frame, classical liberals have a constrained view of deciding well, and modern liberals have an unconstrained view of deciding well. Sowell favors the classical liberal view.⁴ In contrast, linguist George Lakoff sees this difference in terms of a metaphor that likens governments to families. From this linguistic frame, classical liberals want governments that treat their citizens as strict fathers treat their children, and modern liberals want governments that treat their citizens as nurturing mothers treat their children. Lakoff favors the modern liberal view.⁵

“The problem of how we choose frames is infinitely deep. The question of which frame we ought to choose leads us to the question of which frame we ought to choose in order to choose which frame we ought to choose. This in turn leads us to the question of which frame we ought to choose in order to choose which frame we ought

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

to choose in order to choose which frame we ought to choose. We can continue this line of questioning without limit. We can never solve this infinitely large problem. We can only pretend to be certain by ignoring it, or aspire to be wise by addressing it.

“As we shall see, we can address the infinitely large problem of choosing frames by expanding the problem of deciding well to infinity. From Sowell’s constrained versus unconstrained vision frame, this holistic approach to deciding well calls not only for a constrained view of deciding well, but also for as unconstrained a view of deciding well as we can imagine. We use the constrained view to help us solve given problems and the unconstrained view to help us find the best problems to solve. From Lakoff’s metaphors frame, governments are like research managers who help us explore the timeless end of living well, which we do by seeking to live ever more wisely, ever more coherently, ever more truly, and ever more justly. Understanding this holistic approach to deciding well calls for understanding the timeless ends of deciding well, living well, contemplating well, believing well, and governing well. We begin with the timeless end of deciding well.”

⁴ Sowell, Thomas, *A Conflict of Visions: Ideological Origins of Political Struggles*, (New York, William Morrow & Company, 1987).”

⁵ Lakoff, George, *Moral Politics: What Conservatives Know and Liberals Don’t*, (Chicago, University of Chicago Press, 1997).”

Chapter 1, Two Views of Deciding Well, first paragraph

Changed “our ends” to “ends” in the first sentence.

Changed “their ends” to “the ends that they address” in the second sentence.

Changed “living well” to “the process of living well” in the fifth sentence.

Chapter 1, Two Views of Deciding Well, second paragraph

Changed “To decide” to “From the temporal view of modern economics, to decide” in the last sentence.

Chapter 1, Two Views of Deciding Well, third paragraph

Changed “both excellence in solving temporal problems and excellence in finding temporal problems” to “excellence in both solving temporal problems and in finding temporal problems to solve” in the first sentence.

Changed “Good managers” to “Decision scientists” in the second sentence.

Changed “To decide” to “From the timeless view of decision science, to decide” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Merged the third paragraph into the second paragraph

Chapter 1, Two Views of Deciding Well, new third paragraph

Changed “solving the problem **at hand**” to “solving the **temporal** problem **we chose to solve**” in the first sentence.

Changed “**solving our** timeless problem” to “**addressing the** timeless problem **we chose to address**” in the second sentence.

Changed “**Deciding well**” to “**In complex adaptive system terms, deciding well**” in the last sentence.

Deleted the footnote: “**To decide well is also a matter of performing these formal steps well, which includes balancing the cost and benefits of each step. Few decision events deserve all of these formal steps.**”

Merged the last four sentences into the new fourth paragraph.

Deleted the footnote: “**Here again, to decide well is also a matter of performing these formal steps well, which includes balancing the cost and benefits of each step. Few decision cycles deserve all of these formal steps.**”

Chapter 1, Two Views of Deciding Well, new fourth paragraph

Changed “**Deciding well**” to “**In complex adaptive system terms, deciding well**” in the last sentence.

Chapter 1, Two Views of Deciding Well, last paragraph

Changed “**When we**” to “**From the timeless view of deciding well, when we**” in the first sentence.

Changed “problems” to “**temporal** problems **to solve**” in the fourth sentence.

Changed “the **things**” to “the **resources**” and “problems” to “**temporal** problems” in the fifth sentence.

Deleted the last sentence: “**In planning terms, these resources are strategic assets.**”

Chapter 1, The EOQ/RTS Example, third paragraph

“The EOQ model **contains the hidden assumption that we** do not learn through experience. This **assumption tends to be self-fulfilling**. Managers who do not expect **learning** do not **instruct** their workers to learn **how to set up ever more efficiently**. Until the Toyota practice of *rapid tool setting* (RTS) became popular, it was common

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

for standard procedures for setting up machine tools to remain unchanged for years, even decades. In contrast, managers practicing RTS **instruct** their **workers** to learn how to set up ever more efficiently. **They also look for ways to promote such learning.**”

was changed to:

“**The temporal concept of deciding well inherent in the EOQ model does not allow for learning through experience. This deficiency tends to blind managers using the EOQ model to the possibility of learning.** Managers who do not expect **their workers to learn** do not **manage their workers in ways that encourages** their workers to learn. Until the Toyota practice of *rapid tool setting* (RTS) became popular, it was common for standard procedures for setting up machine tools to remain unchanged for years, even decades. In contrast, managers practicing RTS **promote learning** how to set up ever more efficiently **through such means as training team members to learn, encouraging team members to share ideas about learning, and rewarding team members for learning.**”

Chapter 1, The Need for Timeless Views, last paragraph, last two sentences

“**Like most residents of Flatland,** these residents of our modern age fail to grasp a larger truth. To grasp this truth, they need a timeless view of deciding well.”

was changed to:

“**Lacking the concepts they need to “see” through “efficiency frontiers,”** these residents of the modern age fail to grasp a larger truth. To grasp this truth, they need to **embrace** a timeless view of deciding well.”

Chapter 1, end

Added the following:

“Temporal versus Timeless Values

The Toyota production system shows us how we can use the timeless concept of deciding well to help us find better temporal problems to solve. We can also use this concept to help us find better timeless problems to solve. If this seems paradoxical, it is because we are so used to looking at the world from a temporal view. From a temporal view, the bounded process of deciding well cannot help us find what it is that we ought to seek; we must look elsewhere for this knowledge. In contrast, from a timeless view, the unbounded process of deciding well can help us find what we ought to seek by providing us with a coherent way of thinking about the whole. This timeless way of thinking about the whole is the key to a holistic way of viewing our search for useful knowledge. To understand this, we need to need to distinguish between the temporal and timeless ideals that we use to decide well under constraints. We commonly call these ideals *values*.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In discussing temporal and timeless values, we can avoid much tedium and confusion by capitalizing timeless values. Using this convention, (1) to pursue the timeless end of living well is to pursue the Good; (2) to pursue the timeless end of believing well is to pursue the Truth; (3) to pursue the timeless end of deciding well is to pursue Wisdom; and (4) to pursue the timeless end of living and working with others well is to pursue Justice. To many modern readers, this convention will have theistic overtones. Properly conceived, it has religious overtones that may or may not be theistic. As we shall see in the balance of this work, in the endless pursuit of deciding well, it is useful to distinguish between ‘theism’ (“belief in the existence of the divine”); ‘religion’ (“the pursuit of linking or re-linking with something infinitely greater than ourselves”); and ‘faith’ (“certainty beyond reason”). We can easily imagine using each of these three concepts in conflict with the other two. We can imagine theists without religious zeal, without faith in the existence of the divine, or with faith in the chance to win a trip to Las Vegas. We also can imagine atheists with faith in the non-existence of the divine, or atheists pursuing justice with religious zeal. We ought to distinguish between theism, religion, and faith.

“From the temporal view, we base our values on what we currently know. The temporal concept of deciding well does not include learning. Hence, we cannot learn more about temporal values by deciding well. We must look beyond deciding well to find sources for our values. These outside sources include such things as theistic texts, political ideologies, and moral philosophies.

“From the timeless view, we base our values on what we may learn from the endless process of deciding well. The timeless concept of deciding well includes learning ever more about deciding well. Deciding well and our understanding of deciding well co-evolve. Hence, we can learn about timeless values by deciding well. Although outside sources of knowledge may be helpful, we do not need to rely on them to help us learn about timeless values.

“Learning ever more about timeless values calls for us to question the process by which we reduce experience into general beliefs about experience. In philosophical terms, we *induce* general beliefs about the world from instances of experience. Consider the claims that we might make about the color of marbles in an urn by examining marbles randomly drawn from the urn. If the first fifty marbles we randomly draw from the urn are white, we can reasonably believe that there is a high probability that all of the marbles in the urn are white. If the first five hundred marbles that we pull from the urn are white, we can reasonably believe that there is a very high probability that all of the marbles in the urn are white. However, we cannot reasonably induce the belief that all marbles in the urn are white until we examine every marble in the urn. This awkward fact raises doubts about the validity of such general beliefs as all crows are black, all ice cubes are cold, and the laws of physics are true. Philosophers call the question of whether the process of inducing general beliefs from experience is valid reasoning *the problem of induction*.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Nineteenth-century philosopher John Stuart Mill provides us with a famous real-world example of this problem. Prior to the European discovery and exploration of Australia, Europeans believed that all swans were white. The European discovery of a new Australian bird species led Europeans to change this belief to the belief that all swans are either white or black. Mill intended his “black swan” example to show us how unexpected events may change our beliefs. The complete history of the discovery of this new species also shows us how an unexpected event may change the concepts underlying our beliefs. Rather than including the new bird in “swan” genus (*atratus*), the Europeans originally created a new genus (*chenopsis*). Under this genus, the new birds were as distant from swans as cheetahs are from domestic cats. Hence, the Europeans did not need to change their belief that all swans are white. It was only after the Europeans reclassified the new birds into the swan genus that they needed to change their belief about the color of swans. *The problem with inductive reasoning concerns not only our beliefs but also the concepts underlying our beliefs.*¹⁰

“From the temporal view of believing well, this broader view of the problem with inductive reasoning raises sociological questions about how we collectively choose to reduce our experiences to concepts. These questions include who chooses, why they choose as they do, and why the rest of us accept what they choose.

“From the timeless view of believing well, this broader view of the problem with inductive reasoning raises the question of what system of concepts best helps us to believe well. Addressing this question calls for us to consider the ultimate end of believing well. Is it a means of pursuing the Good? Is it a means of pursuing the Truth, which is to say an end in itself? Is it a means of pursuing Justice? Is it all of these things? Is it all of these things and more?

“From the modern liberal view, there is no right or wrong answer to these questions. This is because there is no disputing what end or ends we should value most highly within the bounds set by the political problem of maintaining the freedom to choose what matters most to each of us, which we do by maintaining a good society, a society in which the least well-off members have what they need to live decent lives.¹¹

“From the timeless view of deciding well, the modern liberal belief system is temporal. Like other temporal belief systems, it tends to blind us to the best problems to solve. A kind assessment is that it is a *rational* response to the schism between Plato and Aristotle that is at the core of Western thought. Plato would have us know the Truth by breaking free from the everyday concepts that cause us to see only the shadows of things, fighting our way out of the cave of ignorance, and stepping into the light of the Good. Once we are used to the light of the Good, we will be able to see the ideal forms — the unchanging elements and relations — that underlie all sensations of reality. In other words, Plato would have us break the stream of words that binds our minds to our personal mental worlds in order to embrace a stream of words that binds our minds to a universal mental world. This is not a rational process; it is a religious one. It is the mystical process of linking or re-linking to something infinitely greater than ourselves.¹² In sharp contrast, Aristotle split the study of nature and motion, which

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

he called physics, from the study of first causes and principles, which he variously called wisdom, first philosophy, or theology. In modern terms, he split science from metaphysics. His approach is *rational*, not *wise*.¹³

“The *wise* response to this schism between religion and science at the core of Western thought is to pursue the timeless end of knowing the unchanging elements and relations that underlie all sensations of reality. We pursue this timeless end by pursuing the timeless end of deciding well. The first step in setting this course is to create the concepts of bounded and boundless factors of the endless process of deciding well. A bounded factor is any factor for solving temporal problems that we can have in excess. One such factor is material resources. An example of excess material resources is maintaining thirty punch card presses when three can more than meet expected demand. We do not need to maintain such a high level of production capacity. Another bounded factor is freedom. An example of excess freedom is the freedom to cripple or kill our competitors. We do not need the freedom to choose what is so clearly unjust. In contrast, a boundless factor is any factor of solving temporal problems that we cannot have in excess. The Good, the Truth, and Wisdom are boundless factors. We need the Good to avoid deprivation, which hinders us from deciding well. We need the Truth to avoid ignorance, which also hinders us from deciding well. Wisdom is knowledge of how to decide well. We can never have too much knowledge of how to decide well.

“The next step is to recognize that the endless process of deciding well is the same for all timeless ends that are boundless factors of the endless process of deciding well. Hence, the endless pursuits of all of the boundless factors of deciding well intertwine to form a single endless pursuit. Consider the relation between the pursuit of the Good and the pursuit of the Truth. We pursue the Good by deciding well, which calls for us to pursue the Truth. We pursue the Truth by deciding well, which calls for us to pursue the Good. Thus the pursuit of the Good and the pursuit of the Truth intertwine to form a single pursuit.

“The last step is to recognize that Justice is a boundless factor of deciding well. We need the help of others to pursue the boundless factors of deciding well. We can never live and work too well with others. The inexhaustibility of knowledge makes it as easy, if not easier, to cooperate across time as to cooperate across space. The ancient Chinese provide us a simple model for cooperating across time, “The debts that we owe to our ancestors we pay to our descendents.” Following this model, we can cooperate in deciding well across time and space with the moral rule, “The debts we cannot pay to those due we pay to others by deciding well.” This includes the debts that we owe to those who provided us with the knowledge that we use freely.

“To perfect cooperation in believing well, the knowledge we create must be useful to all intelligent life. To be so, its substance must concern the unchanging elements and relations that underlie all sensations and its form must be the universal language of mathematics. *The gold standard for useful knowledge is the mathematical representation of the unchanging elements and relations that underlie all sensations.*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In summary, the temporal and timeless concepts of value differ markedly. From the temporal view of deciding well, sources outside of the process of deciding well provide us with values. From the timeless view of deciding well, values emerge from the endless pursuit of deciding well. Deciding well and our understanding of deciding well co-evolve.”

“Overview

In this section, we saw how the timeless concept of deciding well can help us pursue the timeless end of deciding well (Wisdom). In the remaining three sections, we will see how this timeless concept can help us pursue the timeless ends of living well (the Good), believing well (the Truth), and governing well (Justice).

“The section on living well begins with brief discussion of how we ought to use both temporal and timeless tools to pursue the Good. The remainder of the section defines timeless alternatives to the modern economic concepts of wealth, consumption, trade, taxation, production, and profit. These six timeless concepts help us develop a timeless view of living well, which we can use to help us find better problems to solve.

“The section on believing well begins with a discussion of pursuing the ring of Truth. Next is a discussion of the concept of timeless science as the endless process of refining everyday thinking. The section ends with a discussion of the concept of timeless decision science as the endless process of refining our beliefs about deciding well.

“The section on governing well explains how we may test the system of core beliefs that supports timeless science. The hypothesis of this timeless political experiment is the belief that the sovereign rights story of timeless science, which calls for us to pursue the timeless end of living well every more justly, ever more wisely, ever more truly, and ever more coherently, will help us pursue the timeless end of living well better than any other sovereign rights story.”

“¹⁰ Allowing for experience to change our system of concepts blurs the distinction between truths grounded in reason (means independent of fact) and truths grounded in fact. Philosophers will recognize this as the analytic versus synthetic truth problem, which is the first of W. V. O. Quine’s two dogmas of empiricism. See Quine, W. V. O., “Two Dogmas of Empiricism,” *The Philosophical Review* Vol. 60, No. 1 (Jan., 1951) pp. 20-43. Reprinted in Quine, W. V. O., *From a Logical Point of View*, (Harvard University Press, 1953; second, revised edition 1961).”

“¹¹ The primary source of this essential description of modern liberalism is John Dewey, who reduced German idealism and American pragmatism to a democratic socialist stew.”

“¹² Again, this concept of linking or re-linking is agnostic. It includes an atheistic pursuit of the Truth. It also includes Albert Einstein’s dream of understanding God’s

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

thoughts and the Vedanta school of Indian thought's goal of the individual soul (*Atma*) merging with the universal soul (*Brahman*).”

“¹³ In Kuhnian terms, Aristotle's approach is normal science, not revolutionary science. See Kuhn, Thomas, *The Structure of Scientific Revolutions*, (Chicago: University of Chicago Press, 1962), chapter X.”

Chapter 2, Tools for Living Well, first paragraph

“In the first section, we saw how the timeless concept of deciding well can help us decide well. In this section, we will see how the timeless concept of deciding well can help us live well.”

was deleted.

Chapter 2, the second through last section heading titles

Added “**Timeless**” to the titles, e.g., “**Wealth**” becomes “**Timeless Wealth**.”

Chapter 2, Timeless Consumption, first paragraph, first six sentences

“Consuming is the process of using wealth to **achieve our ends**. From the temporal view of modern economics, **this end is the temporal end of satisfying our wants**. Our actions reveal our preferences. Hence, winning a fortune in the lottery is always good for us. From the timeless view of deciding well, **this end is the timeless end of living well**. We make mistakes.”

were changed to:

“Consuming is the process of using wealth to **live well**. From the temporal view of modern economics, **our actions reveal our preferences**. Hence, winning a fortune in the lottery is always good for us. From the timeless view of deciding well, **we make mistakes**.”

Chapter 2, *Pleasure and Pain*, first paragraph

Changed “**are**” to “**can be seen as**” in the first sentence.

Chapter 2, *Pleasure and Pain*, second paragraph, first sentence

“**There are** two sorts of pleasure.”

was changed to:

“Two sorts of pleasure **concern us here**.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, *Pleasure and Pain*, second paragraph, footnote

Added the sentence:

“We see this reflected in the once popular surfer concept of “total involvement” and in psychologist Mihály Csíkszentmihályi’s concept of “flow.””

Chapter 2, *Pleasure and Pain*, fifth paragraph, last sentence

“Finding pleasure in **swimming** calls for an investment in the ability to **swim** well.”

was changed to:

“Finding **complete** pleasure (**ecstasy**) in **running** calls for an investment in the ability to **run** well.”

Chapter 2, *Pleasure and Pain*, last paragraph

“We commonly use the term ‘pleasure’ to mean pleasure-in-acting and the term ‘joy’ to mean pleasure-in-being. Using these common terms, losing ourselves in a good activity yields pleasure and joy, and losing ourselves in a bad activity yields only pleasure.”

was deleted.

Chapter 2, *Virtuous Circles*, first paragraph, first sentence

“Pleasure is not only an end in itself but also a means to joy.”

was changed to:

“We commonly use the term ‘pleasure’ to mean pleasure-in-acting and the term ‘joy’ to mean pleasure-in-being. Using these common terms, pleasure is not only an end in itself but also a means to joy.”

Chapter 2, *Wisdom*, last paragraph

“There are three basic ways of deciding: deliberation, decision rules, and discipline. In its most complete form, deliberation consists of (1) finding a problem to solve; (2) formulating alternatives; (3) evaluating alternatives; (4) choosing an alternative; (5) carrying out the chosen alternative; and (6) learning from the experience. This formal process is thorough but costly. Decision rules (rules of thumb/heuristic methods) are less thorough but also less costly. Discipline (consciously formed habits) is the least thorough, least costly, and least susceptible to deprivation. Deciding well is often a matter of knowing which of these three ways to use.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Chapter 2, *Two Means of Living Well and Alternatives to Living Well*, both sections

“Two Means of Living Well

Aristotle and Spinoza provide us with different means of living well. Aristotle asks us to look for moral virtue in others. He believed that moral virtue is the habit of wanting the right things, which we develop by acting as if we want the right things. In contrast, Spinoza asks us to look into ourselves. He believed that moral virtue is the ability to address the causes of our emotions rationally, which we develop by learning to understand our needs and the best means of satisfying them.

“Spinoza’s means of living well fits a contemplative life better than an active one. It is easier to identify our needs in a monastery than it is in a trading pit. It is not surprising that aspiring Einsteins prefer Spinoza’s ethics and aspiring Alexanders prefer Aristotle’s.

“For most of us, the important question is not whether a contemplative life is better or worse than an active one, but when to abandon introspection for discipline. How do we know when our emotions and appetites interfere with our reason, intuition, and perception? One solution is a list of warning signals, Dante’s seven deadly sins: lust, gluttony, greed, sloth, wrath, envy, and pride.”

were changed to:

“Tools for Pursuing the Virtuous Circle

Aristotle and Spinoza provide us with different means of living well. Aristotle asks us to look for moral virtue in others. He believed that moral virtue is the habit of wanting the right things, which we develop by acting as if we want the right things. In contrast, Spinoza asks us to look into ourselves. He believed that moral virtue is the ability to address the causes of our emotions rationally, which we develop by learning to understand our needs and the best means of satisfying them.

“Spinoza’s means of living well fits a contemplative life better than an active one. It is easier to identify our needs in a monastery than it is in a trading pit. It is not surprising that aspiring Einsteins prefer Spinoza’s ethics and aspiring Alexanders prefer Aristotle’s. However, we ought never to forget that Alexander and Einstein were extraordinary people who lived extraordinary lives. It is impossible for us to know how much of their success was due to their temperament, talents, and simply being in the right place at the right time.

“A great danger of choosing to live the active life of Alexander is falling into the habit of preferring pleasure to joy. Similarly, a great danger in choosing the contemplative life of Spinoza is falling into the habit of preferring joy to pleasure. The Taoist tradition provides us with concepts to help us understand these two problems. From the Taoist view, living well is a matter of balancing *yin* and *yang*. In this context, *yin*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

is the desire for joy/pleasure-in-being; *yang* is the desire for pleasure/pleasure-in-acting. When we have too much *yang*, we pursue pleasure too much. When we have too much *yin*, we pursue joy too much. When *yin* and *yang* are in balance, we pursue the virtuous circle of pleasure and joy.

“Another danger is failing to consider the choices we make. The Hindu tradition provides us with concepts to help us understand this problem. The Sāmkhya doctrine of the three gunas recognizes that all living things are mixtures of *sattva* (lucidity), *rajas* (passion), and *tamas* (dark inertia). When lucidity prevails, we pursue pleasure and joy; when passion prevails, we pursue pleasure; and when dark inertia prevails, we pursue nothing. People who pursue nothing, who blindly follow their leaders or culture, are the most likely to fall into the vicious cycle of poverty.

“These tools help us choose the right path, the path of the endless pursuit of pleasure and joy. We also need tools to help us stay on this path. For example, we need tools to help us know when our emotions and appetites interfere with our reason, intuition, and perception, which is when we ought to abandon introspection for discipline. One solution to this problem is a list of warning signals, Dante’s seven deadly sins: lust, gluttony, greed, sloth, wrath, envy, and pride.”

Chapter 2, *Alternatives to Living Well*, entire section

“*Alternatives to Living Well*

Some people pursue pleasure alone rather than the virtuous circle of pleasure and joy. When choosing to act, they consider only that an activity yields pleasure, not that it satisfies an unmet need. This makes them vulnerable to falling into the habit of masking the pain of an unmet need with the pleasure of an activity that fails to satisfy that unmet need. Other people pursue nothing. They seldom consider whether the activities they choose are good or bad. This makes them the most likely to fall into the cycle of poverty.

“The wisdom of pursuing pleasure and joy has no bounds. In the Hindu tradition, the Sāmkhya doctrine of the three gunas recognizes that all living things are mixtures of *sattva* (lucidity), *rajas* (passion), and *tamas* (dark inertia). When lucidity prevails, we pursue pleasure and joy; when passion prevails, we pursue pleasure; and when dark inertia prevails, we pursue nothing. In the Taoist tradition, living well is a matter of balancing *yin* and *yang*. In this context, *yin* is the desire for joy/pleasure-in-being; *yang* is the desire for pleasure/pleasure-in-acting. When we have too much *yang*, we pursue pleasure too much. When we have too much *yin*, we pursue joy too much. When *yin* and *yang* are in balance, we pursue the virtuous circle of pleasure and joy.”

were deleted.

Chapter 2, *Timeless Trade*, first paragraph footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “Hollywood and the Silicon Valley” to “**The trading clusters we call Hollywood and the Silicon Valley**” in the last sentence.

Chapter 3, The Curious End of Believing Well, title

Changed title to “**Pursuing the Ring of Truth.**”

Chapter 3, Pursuing the Ring of Truth, all paragraphs

“**In the first two sections, we saw how the timeless concept of deciding well can help us decide well and live well. In this section, we will see how this concept can help us believe well.**

“**Eighteenth-century philosopher David Hume explains why believing well ought to be a timeless end. We can never be certain that the way in which we generalize our experiences is true until we experience all that can be experienced. For example, we cannot be certain that all of the marbles in an urn are white until we have examined all of the marbles in the urn. Until we examine the last marble, there is always the chance that the next marble we examine will not be white. Philosophers call this the problem of induction.**

“**Nineteenth-century philosopher John Stuart Mill provides us with a famous real-world example of the problem of induction. Prior to the European discovery and exploration of Australia, Europeans believed that all swans were white. The European discovery of a new Australian bird species led Europeans to change this belief to the belief that all swans are either white or black.**

“**Mill intended his “black swan” example to show how unexpected events may overturn our beliefs. The complete history of the discovery of this new species also shows us how such an event may change the concepts underlying our beliefs. The Europeans originally classified the new species of bird in a new genus, *chenopsis*, rather than the “swan” genus, *atratus*. Under the genus *chenopsis*, the new birds were as distant from swans as cheetahs are from domestic cats. Hence, the Europeans did not need to change their belief that all swans are white. It was only after the Europeans reclassified the new birds into the genus *atratus* that they needed to change their belief about the color of swans. The problem of induction concerns not only our beliefs but also the concepts underlying our beliefs.**

“**From the temporal view of believing well, this expanded view of the problem of induction raises sociological questions about how we collectively choose to reduce our sensations to concepts. These questions include who chooses, why they choose as they do, and why the rest of us accept what they choose. Answering these questions usually involves claims to values.**

“**The great danger with thinking in terms of values is confusing the temporal with the timeless. If we are not careful, we can confuse values based on what we currently**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

know with values based on all that can be known. We can avoid this confusion by capitalizing timeless values. Using this convention, (1) to pursue the timeless end of living well is to pursue the Good; (2) to pursue the timeless end of believing well is to pursue the Truth; and (3) to pursue the timeless end of living and working with others well is to pursue Justice.²

“From the timeless view of believing well, this expanded view of the problem of induction calls for us to ask what system of concepts best helps us to believe well. Answering this question calls for us to consider the ultimate end of believing well. Is it a means of pursuing the Good? Is it a means of pursuing the Truth, which is to say an end in itself? Is it a means of pursuing Justice? Is it all of these things? Is it all of these things and more?

“From the modern liberal view, there is no right or wrong answer to this question. This is because there is no disputing what end or ends we should value most highly. There is only the problem of maintaining the freedom to choose what matters most to us, which we do by maintaining a good society, a society in which the least well-off members have what they need to live decent lives.³

“The modern liberal belief system is temporal. Like other temporal belief systems, it tends to blind us to the best problems to solve. A kind assessment is that it is a *rational* response to the schism between Plato and Aristotle that is at the core of Western thought. Plato would have us know the Truth by breaking free from the everyday concepts that cause us to see only the shadows of things, fighting our way out of the cave of ignorance, and stepping into the light of the Good. Once we are used to the light of the Good, we will be able to see the ideal forms — the unchanging elements and relations — that underlie all sensations of reality. In other words, Plato would have us break the stream of words that binds our minds to our personal mental worlds in order to embrace a stream of words that binds our minds to a universal mental world. This is not a rational process; it is a religious one. It is the mystical process of linking or re-linking to something infinitely greater than ourselves.⁴ In sharp contrast, Aristotle split the study of nature and motion, which he called physics, from the study of first causes and principles, which he variously called wisdom, first philosophy, or theology. In modern terms, he split science from metaphysics. He also provided us with a tool kit for refining our beliefs, which we call Aristotelian logic. His approach is *rational*, not *wise*.⁵

“The *wise* response to this schism at the core of Western thought is to pursue the timeless end of knowing the unchanging elements and relations that underlie all sensations of reality. We pursue this timeless end by deciding well. The first step in setting this course is to create the concepts of bounded and boundless factors of deciding well. A bounded factor is any factor for solving temporal problems that we can have in excess. One such factor is material resources. An example of excess material resources is maintaining thirty punch card presses when three can more than meet expected demand. We do not need to maintain such a high level of production capacity. Another bounded factor is freedom. An example of excess freedom is the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

freedom to cripple or kill our competitors. We do not need the freedom to choose what is so clearly unjust. In contrast, a boundless factor is any factor of solving temporal problems that we cannot have in excess. The Good, the Truth, and Wisdom are boundless factors. We need the Good to avoid deprivation, which hinders us from deciding well. We need the Truth to avoid ignorance, which also hinders us from deciding well. Wisdom is knowledge of how to decide well. We can never have too much knowledge of how to decide well.

“The next step is to recognize that the endless process of deciding well is the same for all timeless ends that are boundless factors of deciding well. Hence, the endless pursuits of all of the boundless factors of deciding well intertwine to form a single endless pursuit. Consider the relation between the pursuit of the Good and the pursuit of the Truth. We pursue the Good by deciding well, which calls for us to pursue the Truth. We pursue the Truth by deciding well, which calls for us to pursue the Good. Thus the pursuit of the Good and the pursuit of the Truth intertwine to form a single pursuit.

“The last step is to recognize that Justice is a boundless factor of deciding well. We need the help of others to pursue the boundless factors of deciding well. We can never live and work too well with others. The inexhaustibility of knowledge makes it as easy, if not easier, to cooperate across time as to cooperate across space. The ancient Chinese provide us a simple model for cooperating across time, “The debts that we owe to our ancestors we pay to our descendents.” Following this model, we can cooperate in deciding well across time and space with the moral rule, “The debts we cannot pay to those due we pay to others by deciding well.” This includes the debts that we owe to those who provided us with the knowledge that we use freely.

“The scope of deciding well is boundless. To perfect cooperation in deciding well, we need to express our knowledge in a form that is useful to all intelligent life. The gold standard of useful knowledge is the mathematical representation of the unchanging elements and relations that underlie all sensations.”

“¹ Allowing for experience to change our system of concepts blurs the distinction between truths grounded in reason (means independent of fact) and truths grounded in fact. Philosophers will recognize this as the analytic versus synthetic truth problem, which is the first of W. V. O. Quine’s two dogmas of empiricism. See Quine, W. V. O., “Two Dogmas of Empiricism,” *The Philosophical Review* Vol. 60, No. 1 (Jan., 1951) pp. 20-43. Reprinted in Quine, W. V. O., *From a Logical Point of View*, (Harvard University Press, 1953; second, revised edition 1961).”

“² To many modern readers, this convention will have theistic overtones. Properly conceived, it has religious overtones that may or may not be theistic. In our natural pursuit of living well it is useful to distinguish between theism (belief in the existence of the divine); religion (the pursuit of linking or re-linking with something infinitely greater than ourselves); and faith (certainty beyond reason). We can easily imagine using each of these three concepts in conflict with the other two. We can imagine

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

theists without religious zeal, without faith in the existence of the divine, or with faith in the chance to win a trip to Las Vegas. We also can imagine atheists with faith in the non-existence of the divine or atheists pursuing justice with religious zeal. We ought to distinguish between theism, religion, and faith.”

“³ The primary source of this essential description of modern liberalism is John Dewey, who reduced German idealism and American pragmatism to a democratic socialist stew.”

“⁴ Again, this concept of linking or re-linking is agnostic. It includes an atheistic pursuit of the Truth. It also includes Albert Einstein’s dream of understanding God’s thoughts and the Vedanta school of Indian thought’s goal of the individual soul (*Atma*) merging with the universal soul (*Brahman*).”

“⁵ In Kuhnian terms, Aristotle’s approach is normal science, not revolutionary science. See Kuhn, Thomas, *The Structure of Scientific Revolutions*, (Chicago: University of Chicago Press, 1962), chapter X.”

were deleted.

Chapter 3, *The Ring of Truth*, heading

Deleted the heading.

Chapter 3, Pursuing the Ring of Truth, new first paragraph

Changed “The” to “From the timeless view of deciding well, the” in the first sentence.

Chapter 3, *The Elephant in the Room*, first paragraph

Changed “There is another “ring of Truth” story here. It concerns” to “Perhaps the grandest “ring of Truth” story concerns” in the first two sentences.

Chapter 3, *The Elephant in the Room*, last two paragraphs

Inserted the heading, “*Revering Life Well*” to in front of the last two paragraphs.

Chapter 3, *Revering Life Well*, first paragraph

Changed “Again,” to “Again, from the timeless view of deciding well,” in the first sentence.

Chapter 3, *Refining Stories*, first paragraph, first three sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“As living beings, it is in our nature to live well. As intelligent beings, we live well by deciding well. Defining what we ought to seek as something other than those things that we need to decide well leads us to act foolishly.”

were changed to:

“From the timeless view of deciding well, defining what we ought to seek as something other than those things that we need to decide well leads us to act foolishly.”

Chapter 3, *Leaning Through Experience*, all subsections

Converted all subsections to bullet point or blocked paragraphs. The bullet points are the former sub-subsection headings, *Trading Failures*, *Recursive Failures*, and *Computer Models*.

Chapter 3, *A Crude Look at the Whole*, third paragraph

Changed “helps us to predict” to “helps us predict” in the first sentence.

Changed “they retard revering life well” to “they result in more stress than there otherwise would be. People immediately experience some of this stress as turbulence in the flow of resources. The remainder is frozen in our networks of knowledge-in-use as embedded mistakes. Though largely hidden from current view, these embedded mistakes both increase the potential for catastrophe and retard progress toward the timeless end of revering life well” in the last sentence.

Chapter 3, *A Crude Look at the Whole*, last paragraph

“In 1776, Adam Smith’s example of a pin factory showed the wisdom of pursuing the virtuous circle of the division of labor and the expansion of market size.²⁶ Today, Toyota’s strategy for learning shows the wisdom of pursuing the virtuous circle of good people and good products. Good people produce good products. Good products, *including good intellectual tools*, produce good people. Given this new logic, we ought to learn more about good people and good products. To do so well, we need a timeless science of deciding well.²⁷”

was moved to the end of the second section and changed to:

“Conclusion

In 1776, Adam Smith’s example of a pin factory showed the wisdom of pursuing the virtuous circle of the division of labor and the expansion of market size.⁷ Today, Toyota’s strategy for learning shows the wisdom of pursuing the virtuous circle of good people and good products. Good people produce good products. Good products, *including good intellectual tools*, produce good people. Given this new logic, we

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

ought to learn more about good people and good products. **To do so well, we need a timeless science of deciding well.⁸ The next section outlines this science.**”

Chapter 3, Conclusion, second paragraph

Changed “concept of science **as the research program of, by, and for intelligent life**” to “concept of science” in the first sentence.

Chapter 3, Conclusion, last paragraph

“**Timeless science calls for testing all beliefs against experience, including the core beliefs that support timeless science. The next section explains how we may test the system of core beliefs that supports timeless science.**”

was deleted.

Chapter 4, Sovereignty, first paragraph

“**In the first three sections, we saw how the timeless concept of deciding well can help us decide well, live well, and believe well. In this section, we will see how this concept can help us govern well.**”

was deleted.

Chapter 4, Sovereignty, new first paragraph, first sentence

“From the timeless view of **deciding** well, governing well is a matter of managing rights and responsibilities well.”

was changed to:

“From **the temporal view of governing well, governing well is a matter of administering justice well. In contrast, from** the timeless view of **governing** well, governing well is a matter of managing rights and responsibilities well.”

Chapter 4, *A Sovereign Story of Timeless Science*, first paragraph

Changed “civil faith” to “civil faith, **what set of publicly professed and practiced beliefs,**” in the last sentence.

Chapter 4, *A Sovereign Story of Timeless Science*, last paragraph

Changed “**this** sovereign rights story” to “**the** sovereign rights story **above**” in the first sentence.

Changed “**this** story” to “**the** story **above**” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, Good Policies, first paragraph

Changed “freedom to decide” to “**presence or absence of the** freedom to decide” in the second sentence.

Chapter 4, *Judge Interventions*, first paragraph, first two sentences

“**Government policymakers decide** who makes what decisions under what incentives. **Wise** policymakers consider the costs and benefits of learning.”

was changed to:

“**In setting policies that concern** who makes what decisions under what incentives, **wise** policy makers consider the costs and benefits of learning.”

Chapter 4, *Judge Interventions*, second paragraph

Changed “erring on the side of not passing a just law” to “erring on the side of not passing a just law, **which is to say erring on the side of liberty**” in the second sentence.

Chapter 4, *Tax Well*, both paragraphs

“The power to tax is not only the power to raise funds but also the power to change decisions. From a temporal view, the power to tax is the power to destroy. Taxing owners of houses based on the number of windows will reduce the number of windows in houses. Similarly, taxing medical researchers by the number of animals they use in their experiments will reduce the number of animals used in medical experiments.

“From a timeless view, the power to tax is the power to induce the creation and use of particular knowledge. Taxing the number of windows in houses will induce the creation and use of knowledge of how to live with fewer windows. Similarly, taxing the number of animals used in medical experiments will induce the creation and use of knowledge of how to experiment using fewer animals. Taxing, like restricting speech or actions, affects how we create and use knowledge. The embedded mistakes from taxing foolishly are just as real, and just as dangerous, as those from restricting speech or actions foolishly.”

was split into two parts. The first part went into a new subsection in the **Living Well** section:

“**Timeless Taxation**

The power to tax is not only the power to raise funds but also the power to change decisions. From a temporal view, the power to tax is the power to destroy. Taxing owners of houses based on the number of windows will reduce the number of windows in houses. Similarly, taxing medical researchers by the number of animals

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

they use in their experiments will reduce the number of animals used in medical experiments.

“From a timeless view, the power to tax is the power to induce the creation and use of particular knowledge. Taxing the number of windows in houses will induce the creation and use of knowledge of how to live with fewer windows. Similarly, taxing the number of animals used in medical experiments will induce the creation and use of knowledge of how to experiment using fewer animals.”

and the last part was changed to:

“Taxing, like restricting speech or actions, affects how we create and use knowledge. The **economic turbulence and** embedded mistakes from taxing foolishly are just as real, and just as dangerous, as those from restricting speech or actions foolishly. **Hence, policymakers ought to think as carefully about how they tax as they do about how they restrict speech or actions.**”

Chapter 4, *Control the Money Supply Passively*, second paragraph

Changed “**a blessing**” to “**beneficial**” in the first sentence.

Appendix A, *Less is More*, end

Added the following paragraph:

“**There is another “less is more” story here. It is that ever leaner production leads to ever more complexity in our networks of knowledge-in-use. Just as the motions of a loom weave yarn into cloth, folding and smoothing parts of the line weave knowledge into networks of knowledge-in-use. Regrettably, we do not yet have the concepts we need to think clearly about the structure of these networks.**”

Appendix B, *Schweitzer’s Universal Spiritual Need*, first paragraph

Changed “**something infinitely greater than ourselves**” to “**the infinite Being**” in the first sentence.

Appendix B, *Schweitzer’s Universal Spiritual Need*, second paragraph

Changed “**Magical mysticism**” to “**From Schweitzer’s view, magical mysticism**” in the first sentence.

Appendix B, *Worldly Benefits of Magical Mysticism*, title

Inserted the following subsection:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“*Temporal and Timeless Mysticism*”

To many people, Schweitzer’s terms ‘mystical oneness,’ ‘ethical mysticism,’ and ‘magical mysticism’ call to mind the most dangerous aspects of theistic religion. From the view of timeless science, the problem lies not in how Schweitzer defines these terms, but rather with his failure to distinguish between the personal and civil concepts of these terms. From the view of timeless science, we are as individual researchers pursuing a personal vision of mystical oneness within a research organization dedicated to pursuing a civil vision of mystical oneness. Personal concepts are those concepts that we use to guide our personal experiments in living well. Civil concepts are those that we use to ensure that our personal experiments in living fall within the bounds of timeless science. We base our personal concepts on our personal faith, which may be theistic, atheistic, or agnostic. We base our civil concepts on our civil faith, the publicly professed and practiced beliefs that support the collective pursuit of the Good, the Truth, Justice, Wisdom, and Beauty.

“Schweitzer bases his three mystical concepts on the term ‘infinite Being.’ To most people, the term ‘infinite Being’ has theistic overtones. To avoid these overtones in the civil concepts of ‘mystical oneness,’ ‘ethical mysticism,’ and ‘magical mysticism,’ we need a less theistic term to express the concept of what we seek when we seek the intertwined timeless ends of the Good, the Truth, Justice, Wisdom, and Beauty. This work uses the vague phrase “something infinitely larger than ourselves” to express this concept.”

Changed “*Magical Mysticism*” to “*Detachment*” in the title sentence.

Appendix B, *Worldly Benefits of Detachment*, first paragraph

Changed “embraced the worldly benefit of *ethical mysticism*” to “recognized the worldly benefit of *embracing the world and life*” in the first sentence.

Changed “*magical mysticism*” to “*denying the world and life by means of detaching ourselves from the world and life*” in the second sentence.

Appendix B, *Worldly Benefits of Detachment*, second paragraph

Changed “*Magical mysticism*” to “*Detaching ourselves from the world and life*” in the first sentence.

Appendix B, *Worldly Benefits of Detachment*, third paragraph

“We can combine the best of *magical and ethical mysticism* by setting our objectives according to *ethical mysticism* and then acting according to *magical mysticism*. Imagine a medical doctor at an airliner crash site performing triage. In choosing to be at the crash site doing triage, she has embraced the world *and life*. To do her best at this terrible task, she must detach herself from her work and the results of her work. In religious terms, she must act as if she is in this world but not of it. *This practical*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

combination of magical and ethical mysticism is more useful than ethical mysticism alone.”

was changed to:

“We can combine the best of embracing and denying the world and life by setting our objectives according to the former and then acting according to the latter. Imagine a medical doctor at an airliner crash site performing triage. In choosing to be at the crash site doing triage, she has embraced the world. To do her best at this terrible task, she must detach herself from her work and the results of her work. In religious terms, she must act as if she is in this world but not of it.”

Appendix B, *Worldly Benefits of Detachment*, last paragraph

“Magical mysticism also can change our belief systems for the better. The classic example is Archimedes’ discovery of the principle of displacement. Such epiphanies raise many questions about the interplay of concepts and consciousness. We laugh when a child asks, “Why do freedom fighters fight against freedom?” We also laugh when a stooge throws away a priceless vase because he confused being priceless with being worthless. Jokes that play on inconsistencies in our system of concepts raise our energy and clarity. Raised energy and clarity can trigger changes in our system of concepts, which can further raise energy and clarity, which can trigger further changes in our system of concepts, and so on. A small event can trigger an avalanche of change that seems to transport us to a new world. This magical process involves breaking the stream of words that connects our consciousness to our belief systems. Mystics of many religions have learned that breaking this stream of words by embracing magical mysticism can help us to change our belief systems for the better. It can help us to conceive what was inconceivable.

was changed to:

“Further, denying the world and life as we know it can change our belief systems for the better. The classic example is Isaac Newton’s epiphany about the force that caused things such as apples to fall to the ground being the same force that kept the planets in orbit around the sun and the moon in orbit around the earth. Such epiphanies raise many questions about the interplay of consciousness and our system of beliefs, including the concepts underlying our beliefs. We laugh when a child asks, “Why do freedom fighters fight against freedom?” We also laugh when a stooge throws away a priceless vase because he confused being priceless with being worthless. Jokes that play on inconsistencies in our system of beliefs raise our energy and clarity. Raised energy and clarity can trigger changes in our system of beliefs, which can further raise energy and clarity, which can trigger further changes in our system of beliefs, and so on. A small event can trigger an avalanche of change that seems to transport us to a new world. This magical process involves breaking the stream of words that connects our consciousness to our belief systems. Breaking this stream of words can help us

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

change our belief systems for the better; it can help us to conceive what was inconceivable.

Appendix B, Balanced Excellence, first paragraph

“Many dualistic religions claim that we need mystical oneness with the infinite Being during life to reach the ultimate end of mystical oneness with the infinite Being after life. In short, a life lived well must include mystical oneness.”

was changed to:

“Many dualistic religions claim that we need to experience mystical oneness with the infinite Being during life in order to reach the ultimate end of eternal mystical oneness with the infinite Being after life. From this view, a life lived well must include the temporal experience of mystical oneness.”

Appendix B, Balanced Excellence, last paragraph

“Some means to mystical oneness sacrifice safety or health in order to conserve scarce resources. Religions that revere life include beliefs to check these extreme means. One example is the Hindu belief that we have as many lifetimes as it takes to reach mystical union. Another is the Catholic belief that we can reach mystical union during an existence after death known as purgatory. Religions that help us revere life well balance emotional and reasonable means to mystical oneness.”

was changed to:

“Some means to experiencing mystical oneness in life sacrifice safety or health in order to conserve scarce resources. Religions that help us revere life include beliefs to check these extreme means. One example is the Hindu belief that we have as many lifetimes as it takes to experience mystical union in life. Another is the Catholic belief that we can attain eternal mystical union during an existence after death known as purgatory. Religions that help us revere life well balance emotional and reasonable means to experiencing mystical oneness in life.”

Appendix B, Heroic Death, first paragraph, last sentence

“The heroic death combines the magical and ethical means of satisfying our need for mystical oneness in a single, final act.”

was changed to:

“Such a death combines the magical and ethical means of satisfying our need to experience mystical oneness in life in a single, final act.”

Appendix B, Heroic Death, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “Those” to “From the view of timeless science, those” in the first sentence.

Changed “fools or knaves” to “fools locked into false temporal views of the world or knaves using others to help them satisfy their foolish personal ends” in the last sentence.

Appendix B, *Einstein's Twin Warnings*, second paragraph

Changed “This belief” to “This belief in divine revelation ” in the second sentence.

Changed “Creator” to “divine being” in the first and third sentences (2 occurrences).

Appendix B, *Einstein's Twin Warnings*, last paragraph

Changed “Creator” to “Father” in the first and second sentences (2 occurrences).

Appendix B, *Deciding Beautifully*, end

Added the following paragraph:

“In pursuing the timeless end of revering life well, we need to distinguish between our personal faith and our civil faith. We are as scientists in a large research institution. We may encourage others to follow our personal research programs in living well. However, should never try to force others to follow them. To do so is to confuse our personal faith with our civil faith.”

Changes in Version 2008.10.10

Michael claimed the conclusions of the fourth chapter (section in essay terms) and two appendices were weak. The October 30 changes included one paragraph additions to the conclusions of the two appendices. The conclusion to the fourth paragraph was simply the conclusion to the fourth paragraph. There was no conclusion to the work as a whole. These changes aim to correct this deficiency. The Boundless Pragmatism subsection concludes the fourth chapter. The Summary and Conclusion subsection concludes the work as a whole.

Chapter 4, *Promote Free Trade*, first paragraph

Changed “Nothing” to “In the long run, nothing” in the last sentence.

Chapter 4, *Conclusion*

“Conclusion

From the timeless view of deciding well, we owe it to ourselves to embrace our role as

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

researchers in the research program of, by, and for intelligent life. We ought to ensure that our experiments in governance are properly run, which is to say that our rights, laws, and actions conform to our beliefs about deciding well. We also ought to encourage rival experiments in deciding well. To do otherwise is to deny our proper role in the flourishing of life.”

was changed to:

“**Boundless Liberalism**

From timeless view of governing well, we can test the core beliefs of timeless science by testing the sovereign story of timeless science. The sovereign story of timeless science calls for us to form governments that ensure both the responsibility and the right to decide well. Given the key role liberty plays in deciding well, we may call this timeless approach to governing well *boundless liberalism*. Boundless liberalism is the civil faith of timeless science.

“Boundless liberalism differs markedly from modern liberalism. From the timeless view of deciding well, modern liberalism puts policymakers in the role of parents and the rest of us in the role of children. This conflicts with idea that we are all researchers and research subjects in the research program of, by, and for intelligent life.

“Boundless liberalism also differs markedly from the classical liberalism that arises from using modern economic models as tools for helping us find problems to solve. Modern economic models tend to blind us to the debts that we owe those who created the knowledge that we use freely. From the timeless view of deciding well, we pay these debts to others by deciding well. Deciding well calls for us to help others decide well. In the long run, nothing is more useful to a person than a person who decides well.

“Unlike boundless liberalism, modern and classical liberalism use the temporal concepts. As we saw in the EOQ/RTS example, the temporal concept of excellence in means tends to blind us to learning. Worse, the temporal concept of deciding well tends to blind us to the problem of embedding mistakes into our networks of knowledge-in-use. This leads to economic debacles, the sudden and catastrophic release of “frozen accidents” under stress.

“From the timeless view of believing well, these reasons alone are not enough to accept boundless liberalism as our civil faith. We ought to accept boundless liberalism if and only if it rings truer than all other civil faiths. Further, we ought to continue to accept it only as long as it continues to ring truer than all other civil faiths. To do otherwise would be to contradict one of the major principles of the intelligent life sciences, which is to test the tools we use to help us find problems to solve by how well they help us find problems to solve.

“**Summary and Conclusion**

The essence of modernism is breaking the whole into parts in order to do something

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

better. The major disadvantage of this is forgetting to consider the whole, especially how we fit into the whole. Despite the fact that this knowledge, like definite knowledge of the transcendental number π , will remain forever beyond our grasp, we must not pass over it in silence. When we expand the scope of the problems we face to the limits of imagination, a structure of timeless values emerges. Understanding the process by which we progress towards these timeless ends, which we may call the endless process of deciding well, can provide us with tools for helping us move towards these ends. We may use these tools to help us find better problems to solve; to help us cooperate with others of different personal faiths; and to help us know when we are acting as wolves, or as sheep, rather than as intelligent beings seeking the Good, the Truth, Justice, Wisdom, and Beauty.”

Changes in Version 2008.10.11

Title

Added the subtitle, “A Timeless View of Our Search for Knowledge.”

Acknowledgments, seventh paragraph

Changed “my use of jargon” to “my use of such terms as “recursionist economics” and “paradigm shift.”” in the fifth sentence.

Acknowledgments, last paragraph

Changed “standard warning applies: the ideas” to “ideas” in the last sentence.

Preface, ninth paragraph

Deleted the phrase “which includes the timeless structure that emerges when we enlarge the problems we face to the limits of imagination” from the third sentence.

Chapter 1, A Holistic View of Deciding Well, third paragraph

“Another way of thinking about how we cope with these constraints is to think deeply about how our mental models of the world mislead us. We normally study these failures on the level of our beliefs about the world. We can also study the failures of our mental models on the level of the concepts that underlie our beliefs.”

was deleted.

Chapter 1, A Holistic View of Deciding Well, new third paragraph

Changed “Yet another” to “Another” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Deleted the third through fifth sentences: “Both groups of liberals believe that we ought to have the freedom to choose what we want, provided that what we want does not constrain the right of others to choose what they want. However, the two groups differ in beliefs about what constraints our choices impose on others. To the classical liberal, these constraints include only those we might directly impose on others by force. To the modern liberal, these constraints include all constraints that keep our fellow citizens from deciding well enough to live decent lives.”

Chapter 1, A Holistic View of Deciding Well, new third paragraph

Changed “holistic approach to deciding well” to “holistic approach to choosing frames” in the second to last sentence.

Chapter 1, A Holistic View of Deciding Well, last paragraph

Deleted the phrase “which we do by seeking to live ever more wisely, ever more coherently, ever more truly, and ever more justly” from the fourth last sentence.

Chapter 1, Temporal and Timeless Values, tenth paragraph

Changed “approach” to “approach to science” in the last sentence.

Changed “revolutionary science” to “a combination of normal science and revolutionary science” in the first sentence of the last footnote.

Chapter 1, Temporal and Timeless Values, last paragraph

Changed “values” to “temporal values” in the second sentence.

Changed “values” to “timeless values” in the third sentence.

Chapter 1, Overview, first paragraph

Changed “timeless concept” to “timeless decision-making concept” in the last sentence.

Chapter 1, Overview, second paragraph

Changed “the pursuit of the Good” to “in our endless pursuit of living well” in the second sentence.

Changed “remainder” to “rest” in the second sentence.

“These six timeless concepts help us develop a timeless view of living well, which we can use to help us find better problems to solve.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Chapter 1, Overview, third paragraph

Changed “**pursuing the ring of Truth**” to “**contemplating well**” in the first sentence.

Chapter 1, Overview, last sentence

“The hypothesis of this timeless **political** experiment is the belief that **the sovereign rights story of timeless science, which calls for us to pursue the timeless end of living well every more justly, ever more wisely, ever more truly, and ever more coherently, will help us pursue the timeless end of living well better than any other sovereign rights story.**”

was changed to:

“**We may call this system of core beliefs the civil faith of timeless science. The hypothesis of this timeless experiment is the belief that this civil faith can help us govern ourselves better than any other civil faith. The section ends with a brief discussion of how this civil faith differs from modern and classical liberalism.**”

Chapter 2, Timeless Profit, first paragraph

Changed “period of action” to “**a** period of action” in the second sentence.

Changed “series of decisions” to “**a** series of decisions” in the third sentence.

Chapter 3, Pursuing the Ring of Truth, title

Changed “**Pursuing the Ring of Truth**” to “**Contemplating Well.**”

Chapter 4, Boundless Liberalism, first paragraph, third and fourth sentences

“**The responsibility to decide well calls for our civil faith to conform to timeless science, and for our personal faith to fall within the bounds of our civil faith. The right to decide well includes the rights to all those things that we need to decide well.**”

were deleted.

Changes in Version 2008.10.13

Preface, fifth paragraph, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We can never be certain that all crows are black (the induction problem) or that all bachelors are unmarried (the analytic versus synthetic truth problem).”

was changed to:

“Among other things, we can never be certain that the concepts that we use to express our beliefs can express definite knowledge of what causes our sensations of reality.”

Chapter 1, A Holistic View of Deciding Well, fourth paragraph

Changed “without limit” to “forever” in the third sentence.

Chapter 1, A Holistic View of Deciding Well, last paragraph

Deleted the phrase “which we do by seeking to live ever more wisely, ever more coherently, ever more truly, and ever more justly” from the fourth last sentence.

Chapter 1, The Need for Timeless Views, last paragraph

Changed ““see” through” to ““see through”” in the second to last sentence.

Chapter 1, Temporal and Timeless Values, second paragraph

Changed “We ought” to “As we shall see, we ought” in the last sentence.

Chapter 1, Temporal and Timeless Values, fourth paragraph, last sentence

“Although outside sources may be helpful, we do not need to rely on them to help us learn about timeless values.”

was changed to:

“There are no sources of knowledge beyond the scope of the endless process of deciding well.”

Chapter 1, Temporal and Timeless Values, second to last paragraph

“To perfect cooperation in believing well, the knowledge we create must be useful to all intelligent life. To be so, its form must be the universal language of mathematics, and its substance must concern the unchanging elements and relations that underlie all sensations. *The gold standard for useful knowledge is the mathematical representation of the unchanging elements and relations that underlie all sensations.*”

was reduced to a footnote of the previous section.

Chapter 1, Overview, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “the concept of **timeless** science” to “the **timeless** concept of science” in the second sentence.

Changed “the concept of **timeless** decision science” to “the **timeless** concept of decision science” in the last sentence.

Chapter 2, Timeless Profit, first paragraph

Changed “value of acting” to “value of acting **well**” in the first sentence.

Chapter 3, *The Elephant in the Room*, last paragraph

Changed “what set of **assumptions that** we choose” to “what **core** set of **currently untestable beliefs, what personal faith,** we choose” in the last sentence.

Chapter 3, *Revering Life Well*, last paragraph

Changed “intelligent **life**” to “intelligent **beings**” in the last sentence.

Chapter 3, *A Crude Look at the Whole*, last paragraph

Changed “**increase the potential for catastrophe and** retard progress toward the timeless end of revering life well” to “retard progress toward the timeless end of revering life well **and increase the potential for major catastrophes**” in the last sentence.

Chapter 4, *A Sovereign Story of Timeless Science*, second paragraph

Changed “timeless science” to “**the** timeless **concept of** science” in the first sentence.

Chapter 4, *Manage the Money Supply Passively*, last paragraph

Changed “**tearing** the fabric of civilization” to “**destroying the interwoven networks of knowledge that bind us together,** the fabric of civilization” in the second sentence.

Chapter 4, Boundless Liberalism, first paragraph

Changed “**sovereign story** of timeless science” to “**civil faith** of science” in the first sentence.

Chapter 4, *A Sovereign Story of Timeless Science*, second paragraph

Changed “timeless science” to “**the** timeless **concept of** science” in the first and second sentences.

Deleted the last sentence: “**Boundless liberalism is the civil faith of timeless science.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix B, Deciding Beautifully, last paragraph, end

Added the sentence: “More likely than not, such confusion will slow progress towards the timeless end of revering life well.”

Changes in Version 2008.10.14

Chapter 1, Temporal versus Timeless Views, first paragraph

“The Toyota production system shows us how we can use the timeless concept of deciding well to help us find better temporal problems to solve. We can also use this concept to help us find better timeless problems to solve. If this seems paradoxical, it is because we are so used to looking at the world from a temporal view. From a temporal view, the bounded process of deciding well cannot help us find what it is that we ought to seek; we must look elsewhere for this knowledge. In contrast, from a timeless view, the unbounded process of deciding well can help us find what we ought to seek by providing us with a coherent way of thinking about the whole. This timeless way of thinking about the whole is the key to a holistic way of viewing our search for useful knowledge. To understand this, we need to need to distinguish between the temporal and timeless ideals that we use to decide well under constraints. We commonly call these ideals *values*.”

was changed to:

“The Toyota production system shows us how we can use the timeless concept of deciding well to help us find better temporal problems to solve. We can also use this concept to help us find better timeless problems to solve. To people with a temporal view, this will likely seem paradoxical. From a temporal view, the temporally bounded process of deciding well cannot help us find what it is that we ought to seek; hence we must look elsewhere for this knowledge. In contrast, from a timeless view, the temporally unbounded process of deciding well can help us find what we ought to seek by providing us with a coherent way of thinking about the whole. To understand this, we need to need to distinguish between the temporal and timeless ideals that we use to decide well under constraints. We commonly call these ideals *values*.”

Chapter 1, Temporal versus Timeless Values, fifth paragraph

Changed “process by which we reduce experience into general beliefs about experience” to “way we frame the world, which includes our general beliefs about the world” in the first sentence.

Changed “fifty marbles” to “twenty marbles” in the fourth sentence.

Changed “five hundred marbles” to “two hundred marbles” in the fifth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “His approach to science” to “This approach to learning” in the last sentence.

Chapter 4, *The Explicit Experiment*, last paragraph

Changed “the people of the United States” to “the people of the United States who think deeply about governing well” in the first sentence.

Chapter 4, Boundless Liberalism, first paragraph

Changed “The civil faith in timeless science” to “This civil faith” in the second sentence.

Changes in Version 2008.10.15

Chapter 1, A Holistic Approach to Deciding Well, third paragraph

Changed “modern liberal view” to “modern liberal metaphor” in the last sentence.

Chapter 1, A Holistic Approach to Deciding Well, last paragraph

Changed “timeless ends” to “timeless concepts” in the second to last sentence.

Changed “timeless end” to “timeless concept” in the last sentence.

Chapter 1, Two Views of Deciding Well, first paragraph

Changed “ends (goals)” to “our ends” in the first sentence.

Chapter 1, Two Views of Deciding Well, fourth paragraph

Changed “complex adaptive system” to “biological” in the last sentence.

Chapter 1, Temporal versus Timeless Values, second paragraph

Changed “As we shall see in the balance of this work, in the endless pursuit” to “In the endless pursuit” in the fifth sentence.

Chapter 1, Temporal and Timeless Values, fourth paragraph

“From the timeless view, we base our values on what we may learn from the endless process of deciding well. The timeless concept of deciding well includes learning ever more about deciding well. Deciding well and our understanding of deciding well co-evolve. Hence, we can learn about timeless values by deciding well. There are no sources of knowledge beyond the scope of the endless process of deciding well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“From the timeless view, we learn ever more **about timeless values** by deciding well. Deciding well and our understanding of deciding well co-evolve. **In timeless terms, seeking the Truth** about timeless values **calls for us to seek the Truth about Wisdom.** As we shall see, **seeking the Truth about Wisdom** in turn calls for us to seek the Truth about seeking the Truth.”

Chapter 1, Temporal versus Timeless Values, fifth paragraph, first two sentences

“**Learning ever more timeless values** calls for us to question the way we frame the world, which includes our general beliefs about the world. **In philosophical terms, we induce** general beliefs about the world from instances of experience.”

was changed to:

“**Eighteenth century philosopher David Hume** provides us with a reason to believe that **seeking the Truth is an endless process.** This reason concerns the way we *induce* general beliefs about the world from instances of experience.”

Chapter 1, Temporal versus Timeless Values, seventh paragraph, first sentence

“From the temporal view of believing well, **this broader view of** the problem of **induction** raises sociological questions about how we collectively choose to reduce our experiences to concepts.”

was changed to:

“From the temporal view of believing well, the problem of **choosing concepts** raises sociological questions about how we collectively choose concepts.”

Chapter 1, Temporal versus Timeless Values, eighth paragraph, first sentence

“From the timeless view of believing well, **this broader view of** the problem of **induction** raises the question of what system of concepts best helps us **to** believe well.”

was changed to:

“From the timeless view of believing well, the problem of **choosing concepts** raises the question of what system of concepts best helps us believe well.”

Chapter 1, Temporal versus Timeless Values, tenth paragraph, first three sentences

“From the timeless view of deciding well, **the modern liberal belief system is temporal.** Like other temporal belief systems, it tends to blind us to the best problems

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

to solve. A kind assessment is that it is a *rational* response to the schism between Plato and Aristotle that is at the core of Western thought.”

were merged into the previous paragraph and changed to:

“From the timeless view of deciding well, this modern answer is temporal, not timeless.

“The debate over whether it is better to take a temporal or timeless approach to believing well has divided Western philosophy since the time of Plato and Aristotle.”

Chapter 1, Temporal versus Timeless Values, tenth paragraph, last sentence

“This approach to learning is *rational*, not *wise*.”

was changed to:

“This approach to believing well is temporal, not timeless.”

Changed “Aristotle’s” to “this” and “a combination of normal science” to “endless cycles of normal” in the first sentence of the footnote.

Chapter 1, Temporal versus Timeless Values, eleventh paragraph

Changed “wise response to this schism between religion and science at the core of Western thought” to “timeless approach to believing well” in the first sentence.

Chapter 3, Refining Everyday Thinking, last paragraph, footnote

Changed “timeless” to “boundless” in the fourth and fifth sentences.

Chapter 3, Refining Stories, fourth paragraph, second footnote

Changed “true” to “the case” in the second to last sentence.

Chapter 3, Conclusion, second paragraph

Changed “mindlessness, which some call *scientism*,” to “foolishness” in the last sentence.

Chapter 3, Computer Models, second paragraph

Changed “asymmetrical information market failures” to “speculative bubbles” in the first sentence.

Chapter 4, Boundless Liberalism, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “idea” to “core belief of timeless science” in the last sentence.

Chapter 4, Boundless Liberalism, fourth paragraph, first two sentences

“Unlike boundless liberalism, modern and classical liberalism use the temporal concepts. As we saw in the EOQ/RTS example, the temporal concept of excellence in means tends to blind us to learning.”

were changed to:

“Further, both modern and classical liberalism use the temporal concepts of excellence in means and of deciding well. The temporal concept of excellence in means tends to blind us to learning.”

Chapter 4, Boundless Liberalism, last paragraph, first two sentences

“From the timeless view of believing well, these reasons alone are not enough to accept boundless liberalism as our civil faith. We ought to accept boundless liberalism if and only if it rings truer than all other civil faiths.”

were changed to:

“From the timeless view of believing well, we ought to accept boundless liberalism if and only if it rings truer than all other civil faiths.”

Changes in Version 2008.10.18

Preface, ninth paragraph

Changed “pursuits” to “endless pursuits” in the fourth sentence.

Chapter 1, Two Views of Deciding Well, fourth paragraph, last sentence

“In biological terms, deciding well and our understanding of deciding well co-evolve.”

was changed to:

“The endless process of deciding well and our understanding of this process co-evolve.”

Chapter 1, Temporal versus Timeless Values, fourth paragraph

“Deciding well and our understanding of deciding well co-evolve.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“The endless process of deciding well and our understanding of this process co-evolve.”

Deleted “in turn” from the last sentence.

Chapter 1, Temporal versus Timeless Values, twelfth paragraph, first two sentences

“The next step is to recognize that the endless process of deciding well is the same for all timeless ends that are boundless factors of the endless process of deciding well. Hence, the endless pursuits of all of the boundless factors of deciding well intertwine to form a single endless pursuit.”

was changed to:

“The next step is to recognize that the endless process of deciding well. Hence, the endless pursuits of all of the boundless factors of deciding well intertwine to form a single endless pursuit.”

Chapter 1, Temporal versus Timeless Values, last paragraph

“In summary, the temporal and timeless concepts of value differ markedly. From the temporal view of deciding well, sources outside of the process of deciding well provide us with temporal values. From the timeless view of deciding well, timeless values emerge from the endless pursuit of deciding well. Deciding well and our understanding of deciding well co-evolve.”

was changed to:

“In summary, we use values to help us judge deciding well. From the temporal view of deciding well, we base our values on what we currently know. From the timeless view of deciding well, we base our values on what we plan to learn about all that can be known. We learn ever more about values by pursuing the timeless end of deciding well. The endless process of deciding well and our understanding of this process co-evolve.”

Chapter 2, Tools for Pursuing Wisdom, last paragraph, last two sentences

“For example, we need tools to help us know when our emotions and appetites interfere with our reason, intuition, and perception, which is when we ought to abandon introspection for discipline. One solution to this problem is a list of warning signals, Dante’s seven deadly sins: lust, gluttony, greed, sloth, wrath, envy, and pride.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“For example, we need tools to help us know when our emotions and appetites interfere with our reason, intuition, and perception **in order to know** when we ought to abandon introspection for discipline. One solution to this problem is a list of warning signals: lust, gluttony, greed, sloth, wrath, envy, and pride (**Dante’s seven deadly sins**).”

Chapter 3, *The Elephant in the Room*, second and third paragraphs, last sentence (2 occurrences)

“Deciding well and our understanding of **deciding well** co-evolve.”

was changed to:

“**The endless process of** deciding well and our understanding of **this process** co-evolve.”

Chapter 4, Boundless Liberalism, fourth paragraph

Changed “**This leads**” to “**Embedding mistakes into our networks of knowledge-in-use both slows progress and leads**” in the last sentence.

Chapter 4, Boundless Liberalism, last paragraph

“**From the timeless view of believing well, we ought to accept boundless liberalism if and only if it rings truer than all other civil faiths. Further, we ought to continue to accept it only as long as it continues to ring truer than all other civil faiths. To do otherwise would be to contradict one of the major principles of the intelligent life sciences, which is to test the tools we use to help us find problems to solve by how well they help us find problems to solve.**”

was deleted.

Appendix B, *Personal versus Civil Mysticism*, entire subsection

“**To many people, Schweitzer’s terms ‘mystical oneness,’ ‘ethical mysticism,’ and ‘magical mysticism’ call to mind the most dangerous aspects of theistic religion. From the view of timeless science, the problem lies not in how Schweitzer defines these terms, but rather with his failure to distinguish between the personal and civil concepts of these terms. From the view of timeless science, we are as individual researchers pursuing a personal vision of mystical oneness within a research organization dedicated to pursuing a civil vision of mystical oneness. Personal concepts are those concepts that we use to guide our personal experiments in living well. Civil concepts are those that we use to ensure that our personal experiments in living fall within the bounds of timeless science. We base our personal concepts on our personal faith, which may be theistic, atheistic, or agnostic. We base our civil concepts on our civil**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

faith, the publicly professed and practiced beliefs that support the collective pursuit of the Good, the Truth, Justice, Wisdom, and Beauty.

“Schweitzer bases his three mystical concepts on the term ‘infinite Being.’ To most people, the term ‘infinite Being’ has theistic overtones. To avoid these overtones in the civil concepts of ‘mystical oneness,’ ‘ethical mysticism,’ and ‘magical mysticism,’ we need a less theistic term to express the concept of what we seek when we seek the intertwined timeless ends of the Good, the Truth, Justice, Wisdom, and Beauty. This work uses the phrase “something infinitely larger than ourselves.””

was changed to:

“Although Schweitzer’s mystical concepts may ring true for theists, others will find them too theistic. From the view of timeless science, the problem lies not in how Schweitzer defines his concepts, but rather in his failure to distinguish between personal and civil definitions of his mystical terms. Personal concepts are concepts that we use to guide our personal experiments in living well. Civil concepts are concepts that we use to ensure that our personal experiments in living well fall within the bounds of timeless science. We base our personal concepts on our personal faith, which may be theistic, atheistic, or agnostic. We base our civil concepts on our civil faith, the publicly professed and practiced beliefs that support the collective pursuit of the Good, the Truth, Justice, Wisdom, and Beauty. Schweitzer uses the phrase ‘infinite Being’ to define his mystical concepts. Timeless science calls for a phrase that has less theistic overtones. This work uses the phrase ‘something infinitely greater than ourselves.’”

Appendix B, Deciding Beautifully, last paragraph

Changed “them” to “our programs” in the fourth sentence.

Changes in Version 2008.10.20

Acknowledgments, seventh paragraph

Changed “Yankee” to “New England” in the second sentence.

Changed “big picture” to “big picture,” in the fourth sentence.

Chapter 1, Setting Words Aright, last paragraph

Changed “make the best use of what we know” to “decide well” in the last sentence.

Chapter 1, A Holistic Approach to Deciding Well, last paragraph, last two sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Understanding this holistic approach to deciding well calls for understanding the timeless concepts of deciding well, living well, contemplating well, believing well, and governing well. We begin with the timeless concept of deciding well.”

were changed to:

“We are as researchers (and research subjects) in the research program of, by, and for intelligent life.

“Understanding this holistic approach to deciding well calls for understanding the timeless concepts of deciding well, living well, contemplating well, believing well, and governing well. We begin with the timeless concept of deciding well.”

Chapter 1, The EOQ/RTS Example, fifth paragraph

Changed “(temporal) efficient” to “efficient” in the first sentence.

Chapter 1, Temporal versus Timeless Values, twelfth paragraph, end

Added the sentence: “By similar reasoning, all endless pursuits of boundless factors intertwine into a single endless pursuit, which we may call the endless pursuit of deciding well.”

Chapter 1, Temporal versus Timeless Values, last paragraph, third and fourth sentences

“From the timeless view of deciding well, we base our values on what we plan to learn about all that can be known. We learn ever more about values by pursuing the timeless end of deciding well.”

were changed to:

“From the timeless view of deciding well, we learn ever more about values by pursuing the timeless end of deciding well (Wisdom).”

Chapter 3, Conclusion, second paragraph

Changed “Deciding well” to “The endless process of deciding well” in the first sentence.

Chapter 3, Conclusion, last paragraph

Changed “, including” to “. This includes” in the first sentence.

Changed “the system of core beliefs that supports timeless science” to “this system of core beliefs” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *Promote Decision Science*, first paragraph

Changed “ever more” to “(ever more)” in the last sentence.

Chapter 4, Summary and Conclusion, first paragraph

Changed “, which we may call the endless process of deciding well, can provide us with tools for helping us move” to “can provide us with tools for helping us progress” in the last sentence.

Changed “seeking the Good, the Truth, Justice, Wisdom, and Beauty” to “pursuing happiness ever more justly, ever more wisely, ever more truly, and ever more coherently” in the last sentence.

Appendix B, *Personal versus Civil Mysticism*, entire subsection

Moved subsection to the end of the section, that is, after the *Worldly Benefits of Detachment* subsection.

Appendix B, Deciding Beautifully

Changed “Beautifully” to “Reverently” in the title.

Changed “However, should” to “However, we should” in the fourth sentence.

Changes in Version 2008.10.22

Acknowledgments, seventh paragraph

Changed double quotation marks to single quotation marks around the two terms in the fifth sentence.

Chapter 1, Temporal versus Timeless Values, first paragraph, third through fifth sentences

“To people with a temporal view, this will likely seem paradoxical. From a temporal view, the temporally bounded process of deciding well cannot help us find what it is that we ought to seek; hence we must look elsewhere for this knowledge. In contrast, from a timeless view, the temporally unbounded process of deciding well can help us find what we ought to seek by providing us with a coherent way of thinking about the whole.”

were deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Temporal versus Timeless Values, third paragraph, second through fourth sentences

“The temporal concept of deciding well does not include learning. Hence, we cannot learn more about temporal values by deciding well. We must look beyond deciding well to find sources for our values.”

were changed to:

“The temporal concept of deciding well does not include learning; hence we must look beyond deciding well to find sources for our values.”

Chapter 1, Temporal versus Timeless Values, fourth paragraph

“From the timeless view, we learn ever more about timeless values by deciding well. The endless process of deciding well and our understanding of this process co-evolve. In timeless terms, seeking the Truth about timeless values calls for us to seek the Truth about Wisdom. As we shall see, seeking the Truth about Wisdom calls for us to seek the Truth about seeking the Truth.”

was merged into the previous paragraph and changed to:

“From the timeless view, we learn ever more about timeless values by pursuing the timeless end of believing well (the Truth).”

Chapter 1, Temporal versus Timeless Values, new fourth paragraph

Changed “seeking” to “pursuing” in the first sentence.

Chapter 1, Temporal versus Timeless Values, new tenth paragraph, first two sentences

“The timeless approach to believing well is to pursue the timeless end of knowing the unchanging elements and relations that underlie all sensations of reality. We pursue this timeless end by pursuing the timeless end of deciding well.”

were split off from the balance of the paragraph and changed to:

“The timeless approach to believing well is to pursue the timeless end of knowing the unchanging elements and relations that underlie all sensations of reality. As we shall see, we pursue this timeless end by pursuing the timeless end of deciding well (Wisdom).”

Chapter 1, Temporal versus Timeless Values, new eleventh paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The first step in setting this course is to create the concepts of bounded and boundless factors of **the endless process of deciding well**. A bounded factor is any factor **for solving temporal problems** that we can have in excess. **One such factor is material resources. An example of excess material resources is maintaining thirty punch card presses when three can more than meet expected demand. We do not need to maintain such a high level of production capacity. Another bounded factor is freedom. An example of excess freedom is the freedom to cripple or kill our competitors. We do not need the freedom to choose what is so clearly unjust.** In contrast, a boundless factor is any factor **of solving temporal problems** that we cannot have in excess. The Good, the Truth, and Wisdom are boundless factors. We need the Good to avoid deprivation, which hinders us from deciding well. We need the Truth to avoid ignorance, which also hinders us from deciding well. Wisdom is knowledge of how to decide well. We can never have too much knowledge of how to decide well.”

were changed to:

“The first step in setting this course is to create the concepts of bounded and boundless factors of deciding well. A bounded factor is any factor that we can have in excess. **Freedom, trust, and scarce resources are bounded factors. We can have too much of these factors. For example, we do not need the freedom to cripple or kill our business competitors, boundless trust in the integrity of stock brokers, or more shoes than Imelda Marcos.** In contrast, a boundless factor is any factor that we cannot have in excess. The Good, the Truth, and Wisdom are boundless factors. We need the Good to avoid deprivation, which hinders us from deciding well. We need the Truth to avoid ignorance, which also hinders us from deciding well. Wisdom is knowledge of how to decide well. We can never have too much knowledge of how to decide well.”

Changes in Version 2008.10.24

Chapter 1, Overview, third paragraph

“The section on believing well begins with a discussion of contemplating well. Next is a discussion of the timeless concept of science as the endless process of refining everyday thinking. The section ends with a discussion of the timeless concept of decision science as the endless process of refining our beliefs about deciding well.”

was changed to:

“The section on believing well begins with a discussion of contemplating well. Next is a discussion of the timeless concept of science as the endless process of refining everyday thinking. The section ends with a discussion of the timeless concept of decision science as the endless process of refining our beliefs about deciding well.”

Appendix B, Heroic Death, first paragraph, first sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**and** the quality of intellectual tools” to “the quality of intellectual tools, **and the economic resources to do what we would like to do**” in the second sentence.

Appendix B, Heroic Death, first paragraph, first sentence

“**The** one area in which self-destructive emotions remain **free** is the heroic act.”

was changed to:

“**One** area in which self-destructive emotions remain **unchecked** is the heroic act.”

Appendix B, Heroic Death, first paragraph, first sentence

Changed “**our** programs” to “**these** programs” in the third sentence.

Changes in Version 2008.10.25

Preface, ninth paragraph

Changed “**endless** pursuit” to “**timeless** pursuit” in the third sentence.

Chapter 1, Temporal versus Timeless Values, second paragraph

Changed “**endless** pursuit” to “**timeless** pursuit” in the fifth sentence.

Chapter 1, Temporal versus Timeless Values, twelfth paragraph

Changed “**endless** pursuit of deciding well” to “**timeless** pursuit of deciding well” in the last sentence.

Chapter 1, Overview, second paragraph

Changed “**endless** pursuit” to “**timeless** pursuit” in the first sentence.

Chapter 2, *Tools for Pursuing Wisdom*, last paragraph

Changed “**endless** pursuit” to “pursuit” in the first sentence.

Chapter 3, Contemplating Well

Inserted the following subsection:

“**Neither Machines nor Molecules**

In this section, we apply the timeless concept of deciding well to the endless process

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

of believing well. Among other things, this highlights the dangers of confusing the tools we use to help us solve given problems with the tools we use to choose problems to solve. Confusing these two types of tools not only slows our progress, but also embeds mistakes into our networks of knowledge-in-use. These mistakes lead to debacles, the catastrophic release of stress “frozen” in our networks of knowledge-in-use.

“A major cause of confusing these two types of tools is modern economic science. As we saw in the EOQ example, using the temporal tools of modern economics for the timeless task of choosing problems tends to blind us to the possibility of learning. We may call the flawed system that arises from this mistake ‘capitalism.’ As we shall see, capitalism and socialism share the fatal conceit of having us pretend to be certain. Both would have us believe that we know more than we know. Modern economic science would have us think of people as pleasure-seeking machines (marginalist microeconomics) or as molecules (neoclassical macroeconomics). In sharp contrast, the timeless pursuit of believing well calls for us to aspire to be wise by thinking of ourselves as researchers in the timeless pursuit of deciding well. The balance of this section explains how we can do this.”

Chapter 3, *Contemplating Well*, first paragraph

Changed “endless pursuit” to “timeless pursuit” in the first sentence.

Chapter 3, *Contemplating Well*, first paragraph

Changed “endless pursuit” to “timeless pursuit” in the first sentence.

Chapter 3, *Revering Life Well*, first paragraph

Changed “endless pursuit” to “timeless pursuit” in the first sentence.

Chapter 4, *Boundless Liberalism*, last paragraph

Changed ““frozen accidents” under stress” to ““frozen” stress” in the last sentence.

Changes in Version 2008.10.28

Entire work

Changed “Timeless” to “Fractal” in the subtitle.

Chapter 1, *Two Views of Deciding Well*, second paragraph, last sentence

Added the following footnote:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Note that the formal timeless process of deciding well is the same across all scales of temporal problems. What we deem to be a matter of efficiency or effectiveness changes with the size of the temporal problem we choose, or is chosen for us. Hence, forgetting to choose either a temporal problem scale or a temporal scale (time horizon) can cause great confusion. For example, a problem that a CEO may view as an efficiency problem a supervisor may view as an effectiveness problem. In planning terms, a problem that a military general may view as a tactical problem a corporal may view as a strategic problem.”

Chapter 1, Two Views of Deciding Well, fourth paragraph

Changed “endless process” to “timeless process” in the last sentence.

Chapter 1, Temporal versus Timeless Values, last paragraph

Changed “endless process” to “timeless process” in the last sentence.

Chapter 1, Overview, third paragraph

Changed “endless process” to “timeless process” in the second and third (last) sentences.

Chapter 2, Tools for Living Well, first paragraph

Changed title to “Timeless Tools for Living Well.”

Inserted a new first paragraph:

“In this section, we apply the timeless concept of deciding well to the endless pursuit of the Good, which is to say to the timeless process of living well.”

Chapter 2, Conclusion, title

Changed title to “The Need for Timeless Science.”

Chapter 3, Neither Machines nor Molecules, first paragraph, first sentence

“In this section, we apply the timeless concept of deciding well to the endless process of believing well.”

was changed to:

“In this section, we apply the timeless concept of deciding well to the endless pursuit of the Truth, which is to say to the timeless process of believing well.”

Chapter 3, *The Elephant in the Room*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “endless process” to “timeless process” in the last sentence.

Chapter 3, *The Elephant in the Room*, third paragraph

Changed “endless process” to “timeless process” in the last sentence.

Chapter 3, Conclusion, second paragraph

Changed “endless process” to “timeless process” in the first sentence.

Chapter 4, title

Changed the attribution of the first quote from “Publius” to “James Madison.”
Simplified the title heading reference.

““Let me add, that only a virtuous people are capable of freedom. As nations become corrupt and vicious, they have more need of masters.” — *Benjamin Franklin*”

² Franklin, Benjamin, *The Works of Benjamin Franklin*, edited by Jared Sparks, (Chicago: Townsend MacCoun, 1882), vol. VIII, p 297. Searchable text available in Google books (28 October 2008).”

Chapter 4, Sovereignty, first paragraph

Inserted a new first sentence:

“In this section, we apply the timeless concept of deciding well to the endless pursuit of Justice, which is to say to the timeless process of governing well.”

Appendix A, Less is More, last paragraph, end

Added the sentence:

“However, we can speculate that the structure of our networks of knowledge-in-use, like the timeless process of deciding well that produced it, is fractal.”

Appendix B, *Einstein's Twin Warnings*, first paragraph

Changed “endless process” to “timeless process” in the second sentence.

Changes in Version 2008.10.31

Preface, ninth paragraph, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“To change the way we decide is to change the way we choose to live, choose to believe, and choose to govern and be governed.”

was deleted.

Preface, last paragraph

Inserted the following paragraph:

“From an academic view, this work provides a basic insight into how intelligent beings create and use knowledge. This insight is the idea that the timeless process of deciding well, which includes the timeless processes of living well, contemplating well, believing well, and governing well, is temporally self-similar. Academics may use intellectual tools arising from this insight to solve current problems. As important, they may use these tools to find beautiful problems to solve.”

Chapter 4, Control the Money Supply Passively, last paragraph, second sentence

“They release embedded mistakes without destroying the interwoven networks of knowledge that bind us together, **the fabric of civilization.**”

was changed to:

“They release embedded mistakes without destroying **the fabric of civilization**, the interwoven networks of knowledge that bind us together.”

Appendix A, Less in More, last paragraph, end

Added the sentence:

“Understanding these networks ought to be as important to people who study intelligent life as understanding dark energy and dark matter has become to people who study cosmology and physics.”

Changes in Version 2008.11.01

Preface, second to last paragraph

Changed “, which includes the timeless processes of living well, contemplating well, believing well, and governing well, is temporally self-similar” to “is a temporally self-similar universal invariant, which plays a role in the intelligent life sciences similar to that the speed of light plays in modern physics” in the second sentence.

Chapter 1, Temporal versus Timeless Values, paragraph, end

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Added the sentences:

“As such, it tends to blind us to the Good, the Truth, Justice, and Wisdom.”

Chapter 3, Neither Machines nor Molecules, last paragraph, third through fifth sentences

“We may call the flawed system that arises from this mistake ‘capitalism.’ As we shall see, capitalism and socialism share the fatal conceit of having us pretend to be certain. Both would have us believe that we know more than we know.”

was deleted.

Chapter 3, Refining Everyday Thinking, eighth paragraph

Changed “*ethical sciences*” to “*moral sciences*” in the second sentence.

Appendix A, Less is More, last paragraph, fifth sentence

“However, we can speculate that the structure of our networks of knowledge-in-use, like the timeless process of deciding well that produced it, is fractal.”

was deleted.

Changes in Version 2008.11.04

Entire Work, subtitle

Changed subtitle to: “A Fractal View of Intelligent Action.”

Preface, second to last paragraph

Changed “*temporally* self-similar” to “self-similar” in the second sentence.

Appended the sentences:

“However, academics studying intelligent action ought never to forget that in studying intelligent action from this worldview, their role is that of a coach, not a player. They ought never to confuse the first order problem of deciding well with the second order problem of thinking deeply about the problems others face in deciding well. The fractal nature of intelligent action is a first order phenomenon, not a second order one. Accordingly, I wrote this work for players, not coaches.”

Chapter 1, Overview, last paragraph, second through fourth sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Deleted the second sentence: “We may call this system of core beliefs the civil faith of timeless science.”

Changed “civil faith” to “core set of beliefs” and “any other civil faith” to “any other” in the new second sentence.

Changed “civil faith” to “core set of beliefs” in the last sentence.

Chapter 3, Refining Everyday Thinking, third paragraph, second footnote, end

Added the following sentences:

“This neat relation only holds for problems that we can represent by a single decision tree model. Better predictions help us to improve our assessments of uncertain events. Better explanations help us to improve the decision tree structure. Note that this fractal way of looking at the universal problem of deciding well conflicts with the worldview of specialists in solving similar subordinate problems within this universal problem. People who dedicate their lives to studying similar subordinate problems can easily confuse what they do in helping others solve subordinate problems with the problems they face in solving generalizations of these problems. The solution to this first order versus second order abstraction problem is both simple and straightforward. In their professional lives, specialists must stop thinking of themselves as players and start thinking of themselves as coaches.”

Chapter 3, Refining Stories, fourth paragraph

Changed “to live well¹⁶” to “to live well.¹⁶ in defining our civil faith, which is to say the set of theories we publicly proclaim and practice.” in the second sentence.

Changed “tighten these loose theories” to “refine our civil faith” in the third sentence.

Chapter 3, Refining Stories, last paragraph

Changed “weeding out stories” to “weeding out stories from the set of stories that defines our civil faith” in the first sentence.

Chapter 3, Computer Models, first paragraph, last sentence, footnote

Changed “a power law rather than a Gaussian (“bell curve”) probability distribution” to “power law rather than Gaussian distributions” in the second sentence.

Added the sentence: “This is a testable hypothesis.”

Changes in Version 2008.11.10

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, second to last paragraph

“From an academic view, this work provides a basic insight into how intelligent beings create and use knowledge. This insight is the idea that the timeless process of deciding well is a self-similar universal invariant, which plays a role in the intelligent life sciences similar to that the speed of light plays in modern physics. Academics may use intellectual tools arising from this insight to solve current problems. As important, they may use these tools to find beautiful problems to solve. However, academics studying intelligent action ought never to forget that their role in studying intelligent action from this worldview, their role is that of a coach, not a player. They ought never to confuse the first order problem of deciding well with the second order problem of thinking deeply about the problems others face in deciding well. The fractal nature of intelligent action is a first order phenomenon, not a second order one. Accordingly, I wrote this work for players, not coaches. That said, the essential academic argument underlying this work deserves more than a footnote. I present it here in prose form. I put what I have to say to coaches in footnotes.”

to:

“From an academic view, this work provides a basic insight into how intelligent beings create and use knowledge. Acting intelligently calls for us to decide well. Deciding well is a matter of recursively applying a sequence of decision-making steps. The essential steps in this sequence are (1) choosing a temporal problem to solve, (2) solving this problem, and (3) learning from the experience. So conceived, deciding well is a *self-similar universal invariant*, which is to say it is the same regardless of the scale of the temporal problem chosen, and that it is the same for all intelligent beings regardless of their circumstances and beliefs. So conceived, deciding well is also an economic process, which is to say that it is subject to constraints. If deciding well were not subject to constraints, there would be neither the need to distinguish between deciding and deciding well, nor the need to learn from experience.

“According to this conception of deciding well, inasmuch as we decide well, we learn ever more about deciding well. Over time, we collectively (1) learn that we ought to pursue factors of deciding well only to the point that they are useful to us; (2) learn to distinguish between factors that we can have in excess, which I call *bounded factors of deciding well*, and factors that we can never have in excess, which I call *boundless factors of deciding well*; and (3) learn that the endless pursuits of all boundless factors of deciding well intertwine to form a single endless pursuit. The first two of these lessons are obvious; the third calls for an explanation:

For any boundless factor of deciding well (A) and any other boundless factor of deciding well (B), pursuing A well calls for us to decide well, which in turn calls for us to pursue B well. Further, pursuing B well calls for us to decide well, which in turn calls for us to pursue A well. Hence, the pursuit of A and the pursuit of B intertwine to form a single endless pursuit. Further, how tightly the pursuits of A and B intertwine depends on how well we decide well. Applying this logic to all boundless factors, the endless pursuits of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

all boundless factors of deciding well intertwine to form a single endless pursuit. Further, how tightly these endless pursuits intertwine depends on how well we decide well.

“I call the timeless end of pursuing these intertwined pursuits well *the timeless end of deciding well*. Over time, we also collectively learn that we ought to accept this timeless end as our *civil* ultimate end, which is to say our publicly proclaimed and practiced ultimate end. Proving this belief, and the beliefs that support it, calls for making a civil leap of faith.”

Chapter 1, Overview, last paragraph

Changed “system of **core** beliefs” to “system of beliefs” in the first sentence.

Chapter 1, A Holistic Approach to Deciding Well, fifth paragraph

Deleted “(and research subjects)” from the last sentence.

Chapter 3, A Crude Look at the Whole, last paragraph

Changed “**potential for**” to “**probability of**” in the last sentence.

Chapter 3, Conclusion, last paragraph

Changed “**core** beliefs” to “**set of** beliefs” in the first sentence.

Changed “**system of core** beliefs” to “**set of** beliefs” in the last sentence.

Chapter 4, Boundless Liberalism, first paragraph

Changed “**core** beliefs of timeless science” to “**set of** beliefs that supports timeless science” in the first sentence.

Appendix, Less is More, last paragraph

Changed “**another**” to “**a deeper**” in the first sentence.

Appendix B, Einstein's Twin Warnings, last paragraph

Changed “**revere life**” to “**live**” in the second sentence.

Changes in Version 2008.11.12

Chapter 1, A Holistic Approach to Deciding Well, fifth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “classical liberal view” to “constrained view” in the fifth sentence.

Changed “modern liberal metaphor” to “nurturing parent metaphor” in the last sentence.

Changes in Version 2008.11.13

Changes made after feedback by Patricia Vaughn:

Chapter 1, Temporal versus Timeless Values, first paragraph

Deleted duplicate “need to” in the second sentence.

Chapter 2, *Virtuous Circles*, first paragraph

Changed “They” to “Recreational swimmers” in the last sentence.

Chapter 2, Timeless Trade, first paragraph, last sentence

“The structure of commerce emerges from the interplay of these trading costs.⁵”

“⁵ From the temporal view of modern economics, as Ronald Coase observed in his seminal paper, “The Nature of the Firm” (*Economica*, Vol. 4, Issue 16, 386-405), commercial organizations emerge from the high cost of transactions. In contrast, from the timeless view of deciding well, commercial organizations emerge from high fixed cost, low variable cost trade relations. In industrial economies, the most prominent form of commercial organization is the business firm. In knowledge economies, business firms are less prominent. The need to adapt quickly to change creates the need to lower the fixed costs of trade. As these costs fall, business firms become less “firm.” In rapidly changing sectors in which transport and communication costs remain major factors, geographical clusters become more prominent than firms. The trading clusters we call Hollywood and the Silicon Valley have become more firm than the firms they contain.”

was promoted to a paragraph and changed to:

“From the temporal view of modern economics, business firms emerge from the high cost of transactions.⁵ In contrast, from the timeless view of deciding well, the structure of commerce emerges from the high fixed cost of trade relations. As these costs fall, firms become ever less firm, hence entities larger than firms become ever more prominent. These larger entities include geographical clusters, such as Hollywood and the Silicon Valley; and entire sectors, notably the financial sector.”

“⁵ Coase, Ronald, “The Nature of the Firm,” *Economica*, Vol. 4, Issue 16, 386-405.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, Timeless Production, first paragraph

Changed “RTS” to “**rapid tool setting (RTS)**” in the first sentence.

Chapter 3, Neither Machines nor Molecules, second paragraph

Changed “EOQ” to “**economic order quantity (EOQ)**” in the first sentence.

Chapter 3, Contemplating Well, fourth paragraph

Changed “**these two extremes**” to “**what is boring and what is overwhelming**” in the first sentence.

Chapter 3, *The Elephant in the Room*, second paragraph

Changed “**to seek to become**” to “to become” in the second sentence.

The third sentence:

“**Crude means of deciding well emerged from this religious impulse.**”

was changed to:

“**We satisfy this need by deciding well.**”

Changed “we refine” to “we **collectively** refine” in the fifth sentence.

Chapter 3, Refining Everyday Thinking, second to last paragraph

Changed “what **as yet unknown** forms of intelligent life” to “what forms of intelligent life **as yet unknown**” in the last sentence.

Chapter 3, Refining Everyday Thinking, last paragraph

Changed “**than the modern scheme** to carving nature at its joints” to “to carving nature at its joints **than the modern scheme does**” in the last sentence.

Chapter 4, Sovereignty, first paragraph

Changed “to **exercise a right well**” to “to **decide a matter well**” in the last sentence.

Chapter 4, Sovereignty, last paragraph

Changed “**of** about” to “about” in the second sentence.

Chapter 4, Good Policies, first paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “*American Economic Review* 35” to “*American Economic Review*, Vol. 35, No. 4” in the first sentence.

Chapter 4, Boundless Liberalism, second paragraph

Changed “the **core belief of timeless science** that we are all researchers **and research subjects**” to “the **idea** that we are all researchers” in the last sentence.

Chapter 4, Temporal Details, first paragraph, footnote

Changed “came a conference” to “came **from** a conference” in the first sentence.

Changes in Version 2008.11.15

Acknowledgments, fifth paragraph

“**The next two were** seekers of larger truths **who I met at** the Santa Fe Institute. Howard Sherman, SFI’s “official unofficial philosopher of science” during the 1990s, introduced me to Albert Einstein’s theory of knowledge, **thereby weaning me from my belief in self-evident truth**. W. Brian Arthur, an economist who values his search for useful truth more than his professional reputation, suggested that I write a book “from the heart” for the *Harvard Business Review/Economist* magazine audience.”

was changed to:

“**After selling my interest in Star Forms in 1985, I decided to explore an idea I had about how to improve financial decision-making. Decision models can represent what we believe we know about what we know (“known knowns”) and what we don’t know (“known unknowns”), but not what we don’t know about what we don’t know (“unknown unknowns”). However, we may learn from others and from experience. My idea was to create a computer language that lowers the cost of learning by dramatically lowering the cost of communicating what we know and do not know about any financial decision-making situation. Fortunately, the programming tools I needed to build a simple to use visual editor/interactive compiler were not yet available. While waiting for these tools to become available, and stable, I had much time to ponder how we imagine what we don’t know. This took me to the Santa Fe Institute, where I met two seekers of larger truths. Howard Sherman, SFI’s “official unofficial philosopher of science” during the 1990s, introduced me to Albert Einstein’s theory of knowledge. W. Brian Arthur, an economist who values his search for useful truth more than his professional reputation, suggested that I write a book about ethics and economics “from the heart” for the *Harvard Business Review/Economist* magazine audience. Writing this work became a higher priority than selling my computer language, which has too little of the sweet pretense of certainty for modern tastes.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Overview, last paragraph

Changed “**core set** of beliefs” to “**system** of beliefs” in the last two sentences (2 occurrences).

Chapter 3, Refining Everyday Thinking, third paragraph, last footnote, fourth through last sentences

“Note that this fractal way of looking at the universal problem of deciding well conflicts with the worldview of specialists in solving similar subordinate problems within this universal problem. Helping others decide well calls for thinking about the world as it is as well as the world as it is in the process of becoming. People who dedicate their lives to studying similar subordinate problems can easily confuse what they do in helping others solve subordinate problems with the problems they face in solving generalizations of these problems. The solution to this first order versus second order abstraction problem is both simple and straightforward. In their professional lives, specialists must stop thinking of themselves as players and start thinking of themselves as coaches.”

was changed to:

“It is a first order of abstraction phenomenon. In other words, it only holds for deciding well, not for thinking about deciding well, thinking about thinking about deciding well, and so on. It does not hold for problems that concern how others decide.”

Chapter 3, Refining Everyday Thinking, last paragraph, footnote

Changed “**Economists**” to “**Modern** economists” in the second sentence.

Changed “**economists**” to “**modern** economists” in the third sentence.

Changes in Version 2008.11.20

Preface, twelfth paragraph, second sentence

Inserted the sentence:

“**Deciding well and our understanding of deciding well co-evolve.**”

Preface, thirteenth paragraph

“**I call the timeless end of pursuing these intertwined pursuits well *the timeless end of deciding well*.** Over time, we also collectively learn that we ought to accept this

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

timeless end as our *civil* ultimate end, which is to say our publicly proclaimed and practiced ultimate end. Proving this belief, and the beliefs that support it, calls for making a civil leap of faith.”

was appended to the twelfth paragraph and changed to:

“Over time, we also collectively learn that we ought to accept **the timeless end of pursuing these intertwined pursuits well** as our *civil* ultimate end, which is to say our publicly proclaimed and practiced ultimate end. Proving this belief, and the beliefs that support it, calls for making a civil leap of faith.

“**To the extent that we decide well, so conceived, there is a direction to cultural evolution. Further, to the extent that we do not decide well, so conceived, we not only create turbulence in the flows of economic resources, but also embed mistakes into our networks of knowledge-in-use. These mistakes pile up. Unrelieved, this piling up of “frozen stress” leads to major catastrophes, the sudden release of large amounts of stress. Hence, the choice we face is not between good times and bad times; but rather between cycles of good times and bad times, and longer cycles of good times and major catastrophes. To seek to extend good times is short-sighted.**

“**Scientists will likely find this work especially hard to understand. Studying what I call the *intelligent life sciences* calls for studying processes rather than states, for thinking in the first person plural rather than in the passive voice, and for thinking about goals in terms of what we need before thinking about what may be possible. In short, it calls for a radically different mindset than studying what Benjamin Franklin called the *true sciences*.**”

Chapter 1, Setting Words Aright, title

Changed title to “**Setting Concepts Aright.**”

Chapter 1, Setting Concepts Aright, first paragraph

Removed italics from “**Concepts**” in the first sentence.

Chapter 1, A Holistic View of Deciding Well, third paragraph

Changed “**we may**” to “**eminent scholars**” and “**frame**” to “**conceptual framework**” in the second sentence.

Changed “**difference in beliefs**” to “**distinction**” in the third sentence.

Chapter 1, Two Views of Deciding Well, fourth paragraph, last sentence

“**The timeless process of deciding well and our understanding of this process co-evolve.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“We learn to decide ever better.”

Chapter 1, Temporal versus Timeless Values, last paragraph, last sentence

“The timeless process of deciding well and our understanding of this process co-evolve.”

was changed to:

“We learn to decide ever better.”

Chapter 1, Overview, third paragraph

Changed “timeless process” to “endless process” in the second and last sentences (2 occurrences).

Chapter 3, The Elephant in the Room, second paragraph, last two sentences

“We learn by doing. The timeless process of deciding well and our understanding of this process co-evolve.”

was changed to:

“We learn to decide ever better.”

Chapter 3, The Elephant in the Room, third paragraph, last two sentences

“We learn by doing. The timeless process of deciding well and our understanding of this process co-evolve.”

was changed to:

“We learn to decide ever better.”

Chapter 4, The Explicit Experiment, last paragraph, last footnote, last sentence

Added the sentence:

“Further, we can see Franklin’s continued belief in an experimental approach to government in this famous reply to the woman who asked him what the secret meetings in Philadelphia over the summer of 1787 that we now know as the Constitutional Convention produced, “A republic, if you can keep it.””

Chapter 4, Promote Decision Science, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Deleted “(ever more)” from the last sentence.

Chapter 4, Boundless Liberalism, first paragraph

Changed “both the responsibility and the right” to “the right and the responsibility” in the second sentence.

Chapter 4, Boundless Liberalism, third paragraph

Changed “a person than a person who decides well” to “us than people who decide well” in the last sentence.

Chapter 4, Boundless Liberalism, last paragraph

“Further, both modern and classical liberalism use the temporal concepts of excellence in means and of deciding well. The temporal concept of excellence in means tends to blind us to learning. Worse, the temporal concept of deciding well tends to blind us to the problem of embedding mistakes into our networks of knowledge-in-use. Embedding mistakes into our networks of knowledge-in-use both slows progress and leads to debacles, the sudden and catastrophic release of “frozen” stress.”

was changed to:

“Both of these bounded forms of liberalism use temporal concepts to help us find problems to solve. As we saw in the EOQ/RTS example, the temporal concept of excellence in means tends to blind us to learning. Worse, the temporal concept of deciding well tends to blind us to the problem of embedding mistakes into our networks of knowledge-in-use, which both slows progress and leads to debacles, the sudden and catastrophic release of “frozen” stress. In contrast, boundless liberalism uses timeless concepts to help us find problems to solve.”

Changes in Version 2008.11.24

Acknowledgments, first paragraph

Changed “a dozen” to “twelve” in the last sentence.

Acknowledgments, second to last paragraph

Changed “put my thoughts into simple, common language” to “write plainly” in the last sentence.

Acknowledgments, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“I should also like to thank the many others who have reviewed this work over the years. The ideas expressed in this work do not necessarily reflect the beliefs of those who have helped me.”

was changed to:

“The ideas expressed in this work do not necessarily reflect the beliefs of these dozen people, or the many other people who have helped me over the decades I have been thinking about deciding well.”

Chapter 1, Two Views of Deciding Well, second paragraph, footnote

Changed “CEO” to “chief executive” in the second to last sentence.

Changed “military general” to “chief executive” and “corporal” to “supervisor” in the last sentence.

Chapter 3,

Changed “put my thoughts into simple, common language” to “write plainly” in the last sentence.

Chapter 3, Refining Everyday Thinking, third paragraph, footnote

“This neat relation only holds for problems that we can represent by a single decision tree model. Better predictions help us to improve our assessments of uncertain events. Better explanations help us to improve the decision tree structure. It is a first order of abstraction phenomenon. In other words, it only holds for deciding well, not for thinking about deciding well, thinking about thinking about deciding well, and so on. It does not hold for problems that concern how others decide.”

was changed to:

“This neat relation only holds for problems that we can represent by a single decision tree model. Better predictions help us improve our assessments of uncertain events. Better explanations help us improve the decision structure. Hence, it only holds for deciding well, not for thinking about deciding well, thinking about thinking about deciding well, and so on.”

Appendix A, Folding In Processes, second paragraph, last sentence

“Operational complexity concerns the number of decisions production teams face. The fewer the number of flexible links, the simpler the operation is.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Operational complexity concerns the number of decision **alternatives** production teams face. **Hence, the fewer the number of flexible links and the fewer the number of decision alternatives per link,** the simpler the operation is.”

Appendix A, Folding In Processes, last paragraph, last two sentences

“Those near the low end of the batch size scale are more like job shops. **Those near the high end of the scale are more like continuous processes.**”

were changed to:

“Those near the low end of the batch size scale are more like job shops, **and those near the high end of the scale are more like continuous processes. Further, those near the high end of the flexibility scale are more like job shops, and those near the low end of the flexibility scale are more like continuous processes. As we shall see, the Toyota system is flexible like a job shop in that it has many flexible links, and inflexible like continuous production in that these links contain few decision alternatives. These alternatives concern how much WIP each link contains.**”

Changes in Version 2008.11.26

Acknowledgments, last paragraph

“**The ideas expressed in this work do not necessarily reflect the beliefs of these dozen people, or the many other people who have helped me over the decades I have been thinking about deciding well.**”

was deleted.

Preface, fourteenth paragraph

Changed “**“frozen stress”**” to “**mistakes**” in the fourth sentence.

Changed “**To seek**” to “**Seeking**” and “short-sighted” to “**as short-sighted as seeking to prevent all forest fires**” in the last sentence.

Chapter 1, Two Views of Deciding Well, second paragraph, footnote

Changed “**CEO**” to “**chief executive**” in the second to last sentence.

Changed “**military general**” to “**chief executive**” and “**corporal**” to “**supervisor**” in the last sentence.

Chapter 1, Temporal versus Timeless Values, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “ideals” to “**concepts of the** ideals” in the third sentence.

Chapter 1, Temporal versus Timeless Values, second paragraph

“**In the timeless pursuit of deciding well, it is useful** to distinguish between ‘theism’ (‘belief in the existence of the divine’); ‘religion’ (‘the pursuit of linking or re-linking with something infinitely greater than ourselves’); and ‘faith’ (‘certainty beyond reason’). We can easily imagine using each of these three concepts in conflict with the other two. **We can** imagine theists without religious zeal, without faith in the existence of the divine, **or** with faith in the chance to win a trip to Las Vegas. **We also can imagine** atheists with faith in the non-existence of the divine, or atheists pursuing justice with religious zeal. **As we shall see, we ought to distinguish between theism, religion, and faith.**”

was changed to:

“**People who make this mistake do so because they have fallen into the habit of using the terms ‘theism,’ ‘religion,’ ‘faith’ as synonyms for the zealous pursuit of linking or re-linking with the divine. As we shall see, we ought** to distinguish between ‘theism’ (‘belief in the existence of the divine’); ‘religion’ (‘the pursuit of linking or re-linking with something infinitely greater than ourselves’); and ‘faith’ (‘certainty beyond reason’). **People who have trouble understanding this ought to imagine using each of these three concepts in conflict with the other two. They ought to imagine such things as** theists without religious zeal, **theists** without faith in the existence of the divine, **theists** with faith in the chance to win a trip to Las Vegas, atheists with **zealous** faith in the non-existence of the divine, **and** atheists pursuing **social** justice with religious zeal.”

Chapter 1, Temporal versus Timeless Values, eleventh paragraph

Deleted the fourth sentence: “**We can have too much of these factors.**”

Changed “more shoes than Imelda Marcos” to “**a different luxury car for each day of the week**” in the new fourth sentence.

Chapter 3, Neither Machines nor Molecules, entire section

“**In this section, we apply the timeless concept of deciding well to the endless pursuit of the Truth, which is to say to the timeless process of believing well. Among other things, this highlights the dangers of confusing the tools we use to help us solve given problems with the tools we use to choose problems to solve. Confusing these two types of tools not only slows our progress, but also embeds mistakes into our networks of knowledge-in-use. These mistakes lead to debacles, the catastrophic release of stress “frozen” in our networks of knowledge-in-use.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“A major cause of confusing these two types of tools is modern economic science. As we saw in the EOQ example, using the temporal tools of modern economics for the timeless task of choosing problems tends to blind us to the possibility of learning. Modern economic science would have us think of people as pleasure-seeking machines (marginalist microeconomics) or as molecules (neoclassical macroeconomics). In sharp contrast, the timeless pursuit of believing well calls for us to aspire to be wise by thinking of ourselves as researchers in the timeless pursuit of deciding well. The balance of this section explains how we can do this.”

was deleted.

Chapter 3, Contemplating Well, title

Changed title back to “Pursuing the Ring of Truth.”

Chapter 4, The Explicit Experiment, last paragraph

Changed “theological” to “theistic” in the last sentence.

Changes in Version 2008.11.30

Acknowledgments, fifth paragraph

Changed “we know” to “we think we know” in the third sentence.

Preface, second to last paragraph, second sentence

“Studying what I call the *intelligent life sciences* calls for studying processes rather than states, for thinking in the first person plural rather than in the passive voice, and for thinking about goals in terms of what we need before thinking about what may be possible.”

was changed to:

“Studying what I call the *intelligent life sciences* calls for studying processes rather than states; for thinking in the first person plural rather than in the passive voice; for distinguishing between the tools we use to solve problems and the tools we use to find problems to solve; and for thinking about goals in terms of what we need before thinking about what may be possible.”

Chapter 1, A Holistic Approach to Deciding Well, second paragraph

Changed “deliberation” to “what we may call the three D’s, deliberation” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, Tools for Living Well, third paragraph

Changed “active life of Alexander” to “active life” in the last sentence.

Changed “contemplative life of Spinoza” to “contemplative life” in the last sentence.

Chapter 2, Timeless Trade, last paragraph, third sentence

“As these costs fall, firms become ever less firm, hence entities larger than firms become ever more prominent.”

was changed to:

“As we learn ever more about trading, these costs fall, firms become ever less firm, and commercial entities larger than firms become ever more prominent.”

Chapter 2, Timeless Production, first paragraph

“As the rapid tool setting (RTS) example showed, producing well calls for learning-by-doing. Production processes ought to produce both products and knowledge of how to produce better.”

was changed to:

“Production is the intended result of intelligent action. From the temporal view, we *do not* intend to learn from experience, hence production does not include what we learn through experience. As we saw in the economic order quantity (EOQ) example, producing well does not call for learning-by-doing. In contrast, from the timeless view, we *do* intend to learn from experience, hence production includes what we learn from experience. As we saw in the rapid tool setting (RTS) example, producing well calls for learning-by-doing.”

Chapter 2, The Need for Timeless Science, last paragraph

Changed “has to” to “must” in the second sentence.

Chapter 3, Refining Theories, first paragraph

Changed “We ought” to “The timeless concept of science outlined above calls for us” in the first sentence.

Chapter 3, Refining Theories, second paragraph

Changed “We also ought” to “The timeless concept of science outlined above also calls for us” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *The Explicit Experiment*, second paragraph, last footnote

“We can see Franklin’s desire for a timeless approach to science in his February, 1780 letter to fellow amateur scientist Joseph Priestley: “The rapid progress *true* science now makes, occasions my regretting sometimes that I was born so soon. It is impossible to imagine the height to which may be carried, in a thousand years, the power of man over matter. We may perhaps learn to deprive large masses of their gravity and give them absolute levity, for the sake of easy transport. Agriculture may diminish its labor and double its produce; all diseases may be by sure means prevented or cured, not excepting even that of old age, and our lives lengthened at pleasure even beyond the antediluvian standard. O that moral science were in a fair way of improvement, that men would cease to be wolves to one another, and that human beings would at length learn what they now improperly call humanity! (Franklin, Benjamin, *The Works of Benjamin Franklin*, edited by Jared Sparks, [Chicago: Townsend MacCoun, 1882], vol. V p 418. Searchable text available in Google books, [2 August 2008]).” Further, we can see Franklin’s continued belief in an experimental approach to government in this famous reply to the woman who asked him what the secret meetings in Philadelphia over the summer of 1787 that we now know as the Constitutional Convention produced, “A republic, if you can keep it.””

was changed to:

“We can see Franklin’s continued belief in an experimental approach to government in this famous reply to the woman who asked him what the secret meetings that we now call the Constitutional Convention produced, “A republic, if you can keep it.””

Chapter 4, *The Explicit Experiment*, last paragraph, footnote

Changed “the Great Depression” to “what we now call the Great Depression” in the sixth sentence.

Deleted the last two sentences: “If Benjamin Franklin were alive today, he would likely remind us that all who would give up essential liberty to purchase a little temporary safety deserve neither liberty nor safety. He would also likely tell us that all who believe that they know the Truth ought to see the world anew.”

Chapter 4, Boundless Liberalism, last paragraph

Added the paragraph:

“Benjamin Franklin provides us with one of the clearest expressions of boundless liberalism. In the midst of a war that started in his boyhood home and spread around the world, Franklin wrote the following to his fellow amateur scientist, Joseph Priestley:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The rapid progress *true* science now makes, occasions my regretting sometimes that I was born so soon. It is impossible to imagine the height to which may be carried, in a thousand years, the power of man over matter. We may perhaps learn to deprive large masses of their gravity and give them absolute levity, for the sake of easy transport. Agriculture may diminish its labor and double its produce; all diseases may be by sure means prevented or cured, not excepting even that of old age, and our lives lengthened at pleasure even beyond the antediluvian standard. O that moral science were in a fair way of improvement, that men would cease to be wolves to one another, and that human beings would at length learn what they now improperly call humanity!”²⁰

“If Franklin were alive today, he would likely remind more bounded liberals that all who would give up essential liberty to purchase a little temporary safety deserve neither liberty nor safety, and that all who believe that they know the Truth ought to see the world anew.”

²⁰ Franklin, Benjamin, *The Works of Benjamin Franklin*, edited by Jared Sparks, (Chicago: Townsend MacCoun, 1882), vol. V p 418. Searchable text available in Google books, (30 November 2008).”

Chapter 4, Summary and Conclusion, last paragraph

Changed “**ever more justly, ever more wisely, ever more truly, and ever more coherently**” to “ever more wisely” in the last sentence.

Appendix B, Heroic Death, last paragraph

Changed “**foolish**” to “**shortsighted**” in the last sentence.

Changes in Version 2008.12.03

Acknowledgments, fifth paragraph

Changed “**a simple to use visual**” to “**an intuitive**” in the fourth sentence.

Preface, seventh paragraph

Changed “for which I owe debts to” to “for which I owe debts to **Benjamin Franklin,**” in the first sentence.

Chapter 4, *The Explicit Experiment*, second paragraph

Changed “Benjamin Franklin” back to “**Arguably, Benjamin Franklin**” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *The Explicit Experiment*, last paragraph, footnote

Changed “Benjamin Franklin’s” to “this” in the first sentence.

Changes in Version 2008.12.05

Preface, fourteenth paragraph, third and fourth sentences

“These mistakes pile up. Unrelieved, this piling up of mistakes leads to major catastrophes, the sudden release of large amounts of stress.”

were changed to:

“Unrelieved the piling up of these mistakes leads to major catastrophes, the sudden release of large amounts of stress.”

Chapter 1, A Holistic View of Deciding Well, third paragraph

Changed “have a constrained view of deciding well, and modern liberals have an unconstrained view of deciding well” to “tend to have a more constrained view than modern liberals do” in the fourth sentence.

Changed “constrained view” to “more constrained view” in the fifth sentence.

Chapter 3, Computer Models, first paragraph, footnote

“¹⁹ Note that the endless process of deciding well is a recursive process that involves learning by doing. Hence, we should expect power law rather than Gaussian distributions in the resulting phenomena. This is a testable hypothesis. For a clear and concise explanation of why this is important, see the March 23, 2006 *Financial Times* article by Benoit Mandelbrot and Nassim Taleb titled “A Focus on Exceptions that Prove the Rule,” available online at <http://www.ft.com/cms/s/2/5372968a-ba82-11da-980d-0000779e2340.dwp_uuid=77a9a0e8-b442-11da-bd61-0000779e2340.html> (4 July 2008).”

was deleted.

Chapter 3, A Crude Look at the Whole, first paragraph

Inserted second paragraph and paragraph break behind first sentence.

Chapter 3, A Crude Look at the Whole, new second paragraph, last sentence

Added the footnote:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“²¹ The fractal process of deciding well is likely to produce fractal networks of knowledge-in-use, hence the release of “frozen” stress from these networks is likely to be fractal. For a clear and concise explanation of why this is important, see the March 23, 2006 *Financial Times* article by Benoit Mandelbrot and Nassim Taleb titled “A Focus on Exceptions that Prove the Rule,” available online at http://www.ft.com/cms/s/2/5372968a-ba82-11da-980d-0000779e2340,dwp_uuid=77a9a0e8-b442-11da-bd61-0000779e2340.html (5 December 2008).”

Chapter 3, *A Crude Look at the Whole*, last paragraph

Deleted “, which include unemployment and inflation” from the second sentence.

Changed “major” to “civilization threatening” in the last sentence.

Added the sentences: “To choose to ignore this “frozen” stress is not only to choose to live in a fool’s paradise, but also to choose to bequeath the habits of living in a fool’s paradise to future generations.”

Changes in Version 2008.12.08

Acknowledgments, fifth paragraph

Changed “think” to “believe” in the fourth sentence.

Preface, seventh paragraph

“These mistakes pile up. Unrelieved, this piling up of mistakes leads to major catastrophes, the sudden release of large amounts of stress.”

were changed to:

“Unrelieved, the piling up of these mistakes leads to major catastrophes, the sudden release of large amounts of stress.”

Chapter 1, *A Holistic View of Deciding Well*, third paragraph

Changed “political divide between classical and modern liberals” to “current political divide” in the third sentence.

Changed “ political divide between classical and modern liberals” to “current political divide” in the second sentence.

Changed “difference” to “divide” in the third and sixth sentences.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**mothers**” to “**parents**” in the sixth sentence.

Changed “*Moral Politics: What Conservatives Know and Liberals Don’t*, (Chicago, University of Chicago Press, 1997).” to “*Moral Politics: How Liberals and Conservatives Think*, (Chicago, University of Chicago Press, 2002)” in the second footnote.

Changes in Version 2008.12.11

Preface, eleventh paragraph, last four sentences

“So conceived, deciding well is a *self-similar universal invariant*, which is to say it is the same regardless of the scale of the temporal problem chosen, and that it is the same for all intelligent beings regardless of their circumstances and beliefs. So conceived, deciding well is also an economic process, which is to say that it is subject to constraints. If deciding well were not subject to constraints, there would be neither the need to distinguish between deciding and deciding well, nor the need to learn from experience.”

were changed to:

“So conceived, deciding well is an economic process, which is to say that it is subject to constraints. If deciding well were not subject to constraints, there would be neither the need to distinguish between deciding and deciding well, nor the need to learn from experience. So conceived, deciding well is also a *self-similar universal invariant*, which is to say it is the same regardless of the scale of the temporal problem chosen, and that it is the same for all intelligent beings regardless of their circumstances and beliefs.”

Preface, twelfth paragraph

Changed “learn **that we ought** to pursue” to “learn to pursue” in the third sentence.

Preface, second to last paragraph

Changed “short-sighted” to “shortsighted” in the fifth sentence.

Chapter 4, *Control the Money Supply Passively*, last paragraph

Changed “short-sighted” to “shortsighted” in the last sentence.

Chapter 4, *Boundless Liberalism*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Added the sentence: “Further, the modern liberal goal of social justice is nothing more than tribal justice in modern garb.”

Appendix B, *Worldly Benefits of Detachment*, first paragraph

Changed “means of detaching” to “detaching” in the last sentence.

Changes in Version 2008.12.15

(Responses to Lissack edit)

Preface, second paragraph

“I knew that these tools could lead me astray by boxing me in with assumptions. I wanted something to help me know when analytical tools were leading me astray.”

were changed to:

“I knew that these tools could lead me astray. I wanted something to help me know when I was in danger of being led astray.”

Preface, sixth paragraph, end

Added the paragraph:

“To be complete, our search for knowledge must address the two-way relation between the world and the stories we use to explain the world. We base the stories we use to explain the world on the world. When we act on these stories, we change the world. We can address this problem, which modern philosophers of science call the *reflexivity problem*, by thinking of ourselves as embodied rather than unembodied intellects. This calls for considering what we need to believe well, which I call the demand side of science, before we consider what we may discover to be true, which I call the supply side of science. From this universal view of our search for knowledge, what Benjamin Franklin called *true science* is a special case.”

Preface, ninth paragraph

“I wrote this work for people who are looking for tools for solving given problems. In the first section, I seek to convince these people of the need to distinguish between temporal and timeless ends. From this distinction, I develop a timeless concept of deciding well. In the balance of the work, I apply this decision-making concept to the timeless pursuits of living well, believing well, and governing well.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“I wrote this work to help people find better problems to solve. In the first section, I explain why it is important to distinguish between temporal and timeless ends. I go on to develop a timeless concept of deciding well. In the balance of the work, I apply this decision-making concept to the timeless pursuits of living well, believing well, and governing well.”

Preface, last two paragraphs

“Scientists will likely find this work especially hard to understand. Studying what I call the *intelligent life sciences* calls for studying processes rather than states; for thinking in the first person plural rather than in the passive voice; for distinguishing between the tools we use to solve problems and the tools we use to find problems to solve; and for thinking about goals in terms of what we need before thinking about what may be possible. In short, it calls for a radically different mindset than studying what Benjamin Franklin called the *true sciences*.

“Enjoy.”

were changed to:

“It took a devastating forest fire in Yellowstone National Park to change the prevailing view of how we ought to manage forests. It will likely take an equally devastating human debacle to change the prevailing view of how we ought to manage ourselves. The current debacle, which opened with the 2008 financial sector collapse, may prove to be such an event.

“S. M. Harris

“December 15, 2008”

Chapter 1, A Holistic View of Deciding Well, third paragraph

Changed “think deeply” to “think” in the first sentence.

Chapter 1, A Holistic View of Deciding Well, fifth paragraph, last sentence

“We are as researchers in the research program of, by, and for intelligent life.”

was deleted.

Chapter 1, Temporal versus Timeless Values, eleventh paragraph, first six sentences

“The first step in setting this course is to create the concepts of bounded and boundless factors of deciding well. A bounded factor is any factor that we can have in excess. Freedom, trust, and scarce resources are bounded factors. For example, we do not need the freedom to cripple or kill our business competitors, boundless trust in the integrity of stock brokers, or a different luxury car for each day of the week. In contrast, a

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

boundless factor is any factor that we cannot have in excess. The Good, the Truth, and Wisdom are boundless factors.”

were changed to:

“The first step in setting this course is to distinguish between the factors of deciding well that we can have in excess, which we may call *bounded factors of deciding well*, and factors of deciding well that we can never have in excess, which we may call *boundless factors of deciding well*. Freedom, trust, and scarce resources are bounded factors of deciding well. For example, we do not need the freedom to cripple or kill our business competitors, boundless trust in the integrity of stock brokers, or a different luxury car for each day of the week. In contrast, the Good, the Truth, and Wisdom are boundless factors of deciding well.”

Chapter 1, Timeless Tools for Living Well, last paragraph

Changed “provides us with” to “offers” in the last sentence.

Chapter 2, Wisdom, last paragraph

Changed “form” to “form what we know as” in the last sentence.

Chapter 2, Tools for Pursuing Wisdom, last paragraph, first two sentences

“These tools help us choose the right path, the path of the pursuit of pleasure and joy. We also need tools to help us stay on this path.”

were changed to:

“In addition to tools for helping us choose a wise course of action, we also need tools for staying true to the course of action we believe to be wise. In philosophical terms, we need tools to help us be continent.”

Chapter 2, Timeless Trade, last paragraph, end

Added the footnote:

“⁶ The new structure of the financial sector was one of many contributing factors to the 2008 financial debacle. A major question for policymakers is how best to learn about how such factors interact with mistakes embedded in our networks of knowledge-in-use. Do we need bad times to reveal how these factors interact with embedded mistakes? Is investor Warren Buffett’s observation that “only when the tide goes out do you discover who’s been swimming naked” true? If so, is it better to have frequent small downturns or less frequent large ones?”

Chapter 2, The Need for Timeless Science, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**outlines**” to “**describes**” in the last sentence.

Chapter 3, Pursuing the Ring of Truth, fifth paragraph

Changed “depends” to “**in part** depends” in the first sentence.

Chapter 3, *Learning from Experience*, first paragraph

Deleted the last sentence: “**We can even simulate decisions.**”

Changed “reality.” to “reality:” in the new last sentence.

Chapter 3, Computer Models

“**Computer Models** In mathematical terms, deciding well involves two types of discontinuities. First, the way in which we turn new information into new applications of useful knowledge is discontinuous. New information may or may not cause us to form a mental pattern that leads to new useful knowledge. Second, the decision to apply new knowledge is discontinuous. New useful knowledge may or may not cause us to apply new useful knowledge. Because of these discontinuities, a small change can have a small effect, no effect, or a large effect. A small rise in the price of a raw material might (1) cause firms to react as modern economists predict; (2) have no immediate effect; or (3) trigger a firm to adopt a new process that changes the industry. To explain this, we must explain the dynamics of knowledge-in-use, which includes the complex dynamic between the stories that we use to guide our actions and reality.

“Agent-based computer simulations of the imperfect flow of resources should explain what modern economists call Kondratieff waves, business cycles, and speculative bubbles. The purpose of these high-level models of imperfect flow ought to be to improve flow by improving the quality of decision-making. The unrelenting pressure to replace non-knowledge resources with knowledge resources suggests the metaphor of a near freezing river filled with blocks of ice of various shapes and sizes, which represent parts of our networks of useful knowledge. In complexity science terms, these blocks are “frozen accidents.” The best way to avoid a debacle, the sudden release of a large amount of stress, is to prevent embacles, the piling up of frozen accidents under stress. We prevent embacles by deciding well.

“In time, experts will learn more about deciding well from studying computer models. People who seek to decide well will use this knowledge to find problems to solve. They will also learn from the experience.¹⁹”

“¹⁹ This conflicts with the belief of Austrian School economists that we do not need to test theories that explain human action. It also conflicts with the closely related belief of some complex adaptive system scientists that we do not need to test computer models of emergent phenomena. See Lissack, M. R., & Richardson, K. A, “When

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Modeling Social Systems, Models ≠ The Modeled: Reacting to Wolfram's A New Kind of Science," *Emergence*, 2001, Vol. 3, No. 4, 95-111."

was deleted.

Chapter 3, *A Crude Look at the Whole*, second paragraph, last sentence

"These releases disrupt the "natural" level of turbulence"

were changed to:

"These **unpredictable**²⁰ releases disrupt the "natural" level of turbulence.

"The unrelenting pressure to replace non-knowledge resources with knowledge resources suggests the metaphor of a near freezing river filled with blocks of ice of various shapes and sizes, which represent parts of our networks of knowledge-in-use. In complexity science terms, these blocks are "frozen accidents." The best way to avoid a debacle, the sudden release of a large amount of stress, is to prevent embacles, the piling up of frozen accidents under stress. We prevent embacles by deciding well."

²⁰ In mathematical terms, deciding well involves two types of discontinuities. First, the way in which we turn new information into new applications of useful knowledge is discontinuous. New information may or may not cause us to form a mental pattern that leads to new useful knowledge. Second, the decision to apply new knowledge is discontinuous. New useful knowledge may or may not cause us to apply new useful knowledge. Because of these discontinuities, a small change can have a small effect, no effect, or a large effect. A small rise in the price of a raw material might (1) cause firms to react as modern economists predict; (2) have no immediate effect; or (3) trigger a firm to adopt a new process that changes the industry. Agent-based computer simulations of this complex phenomenon should explain what modern economists call Kondratieff waves, business cycles, and speculative bubbles. The purpose of these high-level models ought to be to help us to find better problems to solve. We should test these models by testing how well they help us to find problems to solve. This conflicts with the belief of Austrian School economists that we do not need to test theories that explain human action. It also conflicts with the closely related belief of some complex adaptive system scientists that we do not need to test computer models of emergent phenomena. See Lissack, M. R., & Richardson, K. A, "When Modeling Social Systems, Models ≠ The Modeled: Reacting to Wolfram's A New Kind of Science," *Emergence*, 2001, Vol. 3, No. 4, 95-111."

Chapter 4, *The Explicit Experiment*, second paragraph

Changed "**truly** exceptional" to "exceptional" in the first sentence.

Merged this paragraph with the first paragraph.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix B, Introduction, first paragraph, first sentence

“The **main** problem in developing means of weeding out unjust, unethical, or unwise stories is agreeing on metaphysical assumptions about our nature.”

was changed to:

“This work defines deciding well as a *self-similar universal invariant*, which is to say as something that remains the same regardless of the temporal problem scale we choose, and regardless of our circumstances and beliefs. We can learn ever more about deciding well, so defined, by studying it at various temporal problem scales, in various decision-making circumstances, and within various belief systems. As in studying modern physics, we can learn much by considering extreme cases. Here, we consider the spiritual aspects of living well.

“From the temporal view, one of the **major** problems in developing means of weeding out unjust, unethical, or unwise stories is agreeing on metaphysical assumptions about our nature.”

Appendix B, Introduction, second through last paragraphs

Moved these paragraphs to the beginning of the next section, **The Farther Reaches of Human Nature**.

Appendix B, The Further Reaches of Living Well, new sixth paragraph

Changed “psychology” to “**humanistic** psychology” in the first sentence.

Merged paragraph into the fifth paragraph.

Appendix B, Deciding Reverently, last paragraph, last sentence

“**More likely than not, such confusion will slow progress towards the timeless end of revering life well.**”

was changed to:

“**We revere life well by deciding well, not by forcing our personal faith on others.**”

Changes in Version 2008.12.16

Preface, second to last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**not only create turbulence in the flows of economic resources, but also embed mistakes into our networks of knowledge-in-use**” to “embed mistakes into, **or reinforce mistakes in**, our networks of knowledge-in-use” in the second sentence.

Added the sentence: “**We tend to discover and release more of these embedded mistakes in bad economic times.**”

Chapter 1, A Holistic View of Deciding Well, third paragraph

Changed “**choose to frame (conceptualize) the world**” to “frame the world, **which is to say how we reduce what we sense to concepts**” in the third sentence.

Chapter 1, Two Views of Deciding Well, last paragraph

Changed “embed mistakes into” to “embed mistakes into, **or reinforce mistake in**,” in the third sentence.

Chapter 1, Temporal versus Timeless Values, first paragraph

Changed “decide well **under constraints**” to “decide well” in the third sentence.

Chapter 1, Temporal versus Timeless Values, fourth paragraph, second to last sentence

“This **awkward fact** raises doubts about the validity of such general beliefs as all crows are black, all ice cubes are cold, and the **laws of physics are true.**”

was moved the end of the paragraph and changed to:

“This well-known but often ignored problem raises doubts about the validity of such general beliefs as all crows are black, all ice cubes are cold, and the **speed of light is a universal invariant.**”

Changed “**laws of physics are true**” to “**speed of light is a universal invariant**” in the second to last sentence.

Chapter 3, *Refining Stories*, third paragraph, first two sentences

“From the timeless view of deciding well, defining what we ought to seek as something other than those things that we need to decide well leads us to **act foolishly. Worse, it causes us to** embed mistakes into our networks of knowledge-in-use, that is, into our markets, technologies, legal systems, languages, and cultures.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the timeless view of deciding well, defining what we ought to seek as something other than those things that we need to decide well leads us to embed mistakes into, **or reinforce mistakes in**, our networks of knowledge-in-use, that is, into our markets, technologies, legal systems, languages, and cultures.”

Chapter 3, *A Crude Look at the Whole*, second paragraph

Changed “embed mistakes into” to “embed mistakes into, **or reinforce mistake in**,” in the eighth sentence.

Changes in Version 2008.12.18

Acknowledgments, fifth paragraph

Changed “lowers the cost of learning **by dramatically lowering the cost of communicating what we believe we know and do not know about any financial decision-making situation**” to “**dramatically** lowers the cost of learning **from others and from experience**” in the fourth sentence.

Changed “**imagine** what we don’t know” to “**the many ways we cope with** what we don’t know” in the seventh sentence.

Acknowledgments, last paragraph

Changed “death” to “death **in 2003**” in the third to last sentence.

Preface, seventh paragraph

Changed “**complete, our search for knowledge**” to “**boundless, science**” in the first sentence.

Changed “**universal** view of **our search for knowledge**” to “**timeless** view of **science**” in the last sentence.

Chapter 1, *Setting Words Aright*, last paragraph

Changed “if we are to decide **well**” to “if we are to decide **ever better**” in the last sentence.

Chapter 2, *Three Mistakes*, second paragraph, last two sentences

“For example, teak from a **certified** source **may be more valuable to us than teak of unknown origin. Buying from good suppliers** can help us satisfy our need to be part of something greater than ourselves.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“For example, buying teak from a source certified to grow and harvest teak in an environmentally friendly way can help us satisfy our need to be part of something greater than ourselves, and so may be worth more to us than buying otherwise identical teak from an uncertified source.”

Chapter 2, Timeless Production, first paragraph

Changed “learning-by-doing” to “learning-by-doing, for pushing back our efficiency frontiers” in the last sentence.

Changed “, hence” to “; hence” in the second and fourth sentences (2 occurrences).

Chapter 2, Timeless Profit, first paragraph

Changed “learning” to “what we learn” in the fourth and last sentences (2 occurrences).

Changes in Version 2008.12.24

Acknowledgments, fifth paragraph

Deleted “about ethics and economics” from the second to last sentence.

Changed “work” to “book” and “my” to “the” in the last sentence.

Preface, seventh paragraph, fourth sentence

“This calls for considering what we need to believe well, which I call the demand side of science, before we consider what we may discover to be true, which I call the supply side of science.”

was changed to:

“The harsh fact of our existence as embodied intellects reminds us that the endless pursuit of believing well is an economic process, which is to say a process subject to constraints.”

Preface, eighth paragraph

Changed “decision-making concept” to “timeless decision-making concept” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, tenth paragraph, end

Added the sentence: “So conceived, deciding well plays the role in the *intelligent life sciences* that natural selection plays in the biological sciences. It is the idea that pulls the field together into a coherent whole.”

Chapter 1, Temporal versus Timeless Values, last paragraph, last sentence

“By similar reasoning, all **endless** pursuits of boundless factors intertwine into a single endless pursuit, which we may call the timeless pursuit of deciding well.”

was changed to:

“Further, the better we decide, the tighter we intertwine the pursuits of the Good and the Truth. By similar reasoning, all pursuits of boundless factors intertwine into a single pursuit, which we may call the timeless pursuit of deciding well. Further, the better we decide, the tighter we intertwine all pursuits of boundless factors into the timeless pursuit of deciding well.”

Chapter 2, *Three Mistakes*, title

Changed title back to “*Three Common Mistakes*.”

Chapter 3, *Control the Money Supply Passively*, last paragraph

Changed “shortsighted” to “as shortsighted as seeking to prevent all forest fires” in the last sentence.

Chapter 3, *A Crude Look at the Whole*, second paragraph, last footnote, first sentence

“The fractal process of deciding well is likely to produce fractal networks of knowledge-in-use, hence the release of “frozen” stress from these networks is likely to be fractal.”

was changed to:

“The structure and dynamics of our networks of knowledge-in-use is a great mystery. We may speculate that the releases of large amount of stress is, in part, cyclical. It takes time to accumulate enough stress to cause a major catastrophe. However, it is also clear that a major release of stress in one area may be quickly followed by a major release of stress in another area. For example, a political turbulence in the form of revolution or war may follow a major financial collapse. We may also speculate that the release of stress from these networks has a probability distribution with a fat tail.”

Chapter 4, Boundless Liberalism, last paragraph, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“If Franklin were alive today, he would likely remind **more bounded liberals** that all who would give up essential liberty to purchase a little temporary safety deserve neither liberty nor safety, **and** that all who believe that they know the Truth ought to see the world anew.”

was changed to:

“If Franklin were alive today, he would likely remind **us** that all who would give up essential liberty to purchase a little temporary safety deserve neither liberty nor safety. **From the timeless view of science expressed in this letter to Priestley, it takes little effort to imagine what he would make of the many modern means of protecting the politically powerful at the expense of the rest of humanity, to say nothing of the rest of life.**”

Changes in Version 2008.12.26

Entire Document

Checked links and updated link dates on all references with links to Internet sites.

Preface, seventh paragraph

Changed “From this timeless view **of science**” to “From this timeless view” in the last sentence.

Chapter 3, *A Crude Look at the Whole*, third paragraph

The eighth through last sentences of the first footnote were moved to a new footnote at the end of the fourth paragraph.

Chapter 4, *A Sovereign Story of Timeless Science*, third paragraph

Changed “ever more **justly**, ever more **wisely**, ever more truly, and ever more coherently” to “ever more **wisely**, **hence** ever more **justly**, ever more truly, and ever more coherently” in the third sentence.

Changes in Version 2008.12.31

Preface, fifth paragraph

Changed “concepts **that** we use **to express our beliefs**” to “concepts we use” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, ninth paragraph

Changed “unmanageable whole into manageable parts” to “unwieldy whole into parts” in the first sentence.

Preface, second to last paragraph

Changed “in bad economic times” to “when the stress we experience is great enough to prompt us to decide well but not great enough to retard us from deciding well” in the fifth sentence.

Chapter 1, A Holistic Approach to Deciding Well, fifth paragraph

Changed “economic resources” to “scarce resources” in the first sentence.

Chapter 1, A Holistic Approach to Deciding Well, last two paragraphs

Merged the last two paragraphs.

Chapter 3, The Ring of Truth, third paragraph

“What we find too easy or too hard in part depends on our knowledge of what we are contemplating. Knowledge may make objects easier to contemplate. This may make objects either more or less capable of yielding pleasure in contemplation. For example, knowledge of the structure of classical music may turn Beethoven’s symphonies from being overwhelming to being beautiful. It may also turn rock music from being beautiful to being boring. At times, knowledge may also make objects harder to contemplate. This may make objects either more or less beautiful. For example, knowledge of the patterns of nature may turn Edo period architecture from being boring to being beautiful. It may also turn Rococo architecture from being beautiful to being overwhelming.”

was merged into the second paragraph and changed to:

“Learning about the structure of classical music may turn Beethoven’s symphonies from being overwhelming to being beautiful. Learning about the patterns of nature may turn Edo period architecture from being boring to being beautiful.”

Chapter 3, Refining Everyday Thinking, fifth paragraph

Changed “test” to “can test” in the second sentence.

Chapter 3, Refining Everyday Thinking, sixth paragraph

“Every time we choose to act or not to act, we test our beliefs against experience. We bet our welfare on beliefs based upon imperfect knowledge. Others learn from our

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

experiences. We, in turn, learn from theirs. *We are born to be both researchers and research subjects in the research program of, by, and for intelligent life.*¹⁰⁷

was changed to:

“Other parts of the world appear too complex for us to use a single story to predict and explain. Within these seas of apparent complexity, we can test the stories that we use to predict by how well they help us predict and can test the stories we use to explain by how well they help us find problems to solve.

“There is strong reason to believe that whenever we use stories about the world to guide our actions we sail into seas of complexity. This is because there is a two-way relation between the world and the stories we use to guide our actions. We base the stories we use to guide our actions on the world. Our actions change the world. Consider the statement, “Tulips are a good investment.” If enough people use this story to guide their actions, the price of tulips will rise enough for tulips to become a poor investment. The action of buying tulips undermines the story that tulips are a good investment.

“The two-way relation between the world and the stories that we use to guide our actions gives rise to a wide variety of phenomena, which range from simple speculative bubbles to complex systems of human organizations. We can think about the cause of these phenomena as the interplay of two tendencies of the stories that we use to guide our actions. The first is their tendency to become more popular, which, in part, is due to the inexhaustibility of knowledge. The second is their tendency to undermine the conditions on which we base them. Repeatedly using these stories to guide our actions without considering how our actions change reality tends to lead us ever further away from the best means of living well. When these two tendencies unite, they lead us ever further away from these ideal means. The further we are from these means, the greater is the potential for catastrophes caused by the sudden replacement of knowledge for non-knowledge resources.

“From the modern view, the relation between the world and the stories we use to guide our actions is a problem for us in understanding the world.⁹ From the timeless view of deciding well, this relation is an opportunity to change the world for the better by using stories about the timeless end of deciding well to help us find problems to solve. From this timeless view, every time we choose to act or not to act, we test our beliefs against experience. We bet our welfare on beliefs based upon imperfect knowledge. Others learn from our experiences. We, in turn, learn from theirs. *We are born to be both researchers and research subjects in the research program of, by, and for intelligent life.*¹⁰⁷”

“⁹ Most modern intellectuals prefer ‘reflexive’ to ‘recursive’ to describe this complex dynamic. Arguably, this is because they see their role as seeking the temporal truth rather than seeking the boundless factors of deciding well. We see this in the distinction between Thomas Kuhn’s concept of a paradigm shift as a change in the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

way we conceive of the world and the popular concept of a paradigm shift as a change in the way we see the world that changes the world. By taking a longer view, people who care more about living well than about understanding the world as it currently is shifted Kuhn's paradigm paradigm."

Chapter 3, Refining Deciding Well, first paragraph

"If we all decided well all of the time, we should not need to distinguish between the stories that we use to predict and those that we use to explain. Given that we all do not decide well all of the time, we should distinguish between them. Failing to do so will tend to blind us to the possibility of learning."

was merged into the second paragraph and changed to:

"The two-way relation between the world and the stories we use to guide our actions calls for us to distinguish between the stories we use to predict and the stories we use to explain."

Chapter 3, *Refining Stories*, entire section

Merged this subsection into the Refining Deciding Well section.

Chapter 3, Refining Deciding Well, new second paragraph, first sentence

"The timeless concept of science outlined above calls for us to refine the set of stories that we use to predict what will happen."

was changed to:

"The timeless concept of science described above calls for us to refine the set of stories that we use to predict what will happen by how well they help us predict what will happen."

Chapter 3, Refining Deciding Well, new third paragraph, first sentence

"The timeless concept of science outlined above also calls for us to refine the set of stories that we use to explain what happens."

was changed to:

"The timeless concept of science also calls for us to refine the set of stories that we use to explain what happens by how well they help us find temporal problems to solve."

Chapter 3, *Learning Through Experience*, first paragraph

Changed "As in other activities, we" to "We" in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Deleted the eighth sentence: “For example, we can look for failures that concern trading or failures that concern the complex dynamic between the world and the stories that we use to guide our actions:”

Chapter 3, *Learning Through Experience*, second paragraph

“**Trading Failures** The uneven flow of resources wastes time and other resources. Capturing the benefit of smoothing this flow may call for trading with those hurt by the uneven flow. Mistrust and/or ignorance of better means of trade may constrain us from smoothing the flow. Examples of trading failures uncovered by comparing Western industrial age manufacturing practices to the Toyota system include (1) distributors who fail to share knowledge about their customers with their suppliers for fear of losing business; (2) workers who fail to tell their bosses about foolish procedures for fear of losing work; and (3) workers who lose their jobs during slow times because their labor contracts do not let wages fall. Yet unsolved examples of trading failures include people who fail to discover their genetic predispositions for fear of losing their health insurance coverage, and employees who stay in unsuitable jobs for fear of losing employee benefits. In time, we will learn to solve the trade problems that give rise to these decision failures.”

was changed to:

“One such pattern concerns trading problems that give rise to the uneven flow of resources. The uneven flow of resources wastes time and other resources. Smoothing this flow often calls for trading. Mistrust and ignorance of better means of trade often constrain us from making such trades. Trading problems that give rise to uneven flow that Toyota and others have solved include (1) distributors who fail to share knowledge about their customers with their suppliers for fear of losing business; (2) workers who fail to tell their bosses about foolish procedures for fear of losing work; and (3) workers who lose their jobs during slow times because their labor contracts do not let wages fall. Many other trading problems that give rise to uneven flow have yet to be discovered and solved.”

Chapter 3, *Learning Through Experience*, last five paragraphs

“**Recursive Failures** There is a two-way relation between the stories that we use to guide our actions and reality. We base the stories we use to guide our actions on reality. Our actions change reality. Consider the statement, “Tulips are a good investment.” If enough people use this story to guide their actions, the price of tulips will rise enough for tulips to become a poor investment. Also consider the statement, “I can benefit by violating the trust others put in me.” If enough people use this story to guide their actions, everyone will soon put less trust in others. This two-way relation between the stories that we use to guide our actions and reality gives rise to a wide variety of phenomena, which range from simple speculative bubbles to complex systems of human organizations.¹⁸

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We can think about the cause of these phenomena as the interplay of two tendencies of the stories that we use to guide our actions. The first is their tendency to become more popular, which, in part, is due to the inexhaustibility of knowledge. The second is their tendency to undermine the conditions on which we base them. Repeatedly using these stories to guide our actions without considering how our actions change reality tends to lead us ever further away from the best means of living well. When these two tendencies unite, they lead us ever further away from these ideal means. The further we are from these means, the greater is the potential for catastrophes caused by the sudden replacement of knowledge for non-knowledge resources.

“We can aspire to be wise by using timeless stories to find temporal problems or pretend to be certain by using temporal stories to find problems. A good example of pretending to be certain is the modern economic national accounting system. Imagine a pill that makes people decide better. Releasing this product would change how people decide to live. Some parts of the economy would shrink and other parts would grow. Resources would flow from the shrinking parts to the growing ones. The immediate effect would be a fall in aggregate production and a rise in unemployment. Modern economic science would portray one of the greatest advances in human history as a disaster.

“The problem here is one of how to measure what we need to live well, which calls for knowing the Truth about the Good. Plato only aspired to such knowledge. Only a fool would claim to have found it. From a technical view, the problem of measuring services is universal and the problem of measuring quality is impossibly hard.

“An accounting truism holds that accounting systems promote what we measure at the expense of what we do not measure. Soviet central planners learned this the hard way. When they set screw factory quotas by the quantity of screws produced, factory managers produced too few big screws and too many small screws. When they set quotas by the weight of screws produced, managers produced too many big screws and too few small screws. The solution to our national income accounting problems will be similar to the solution to the Soviet accounting problems. We will replace our decision-making system with one that depends less on problematic measurements. The question is whether we will wait for a major catastrophe before making this change.”

“¹⁸ Most modern intellectuals prefer ‘reflexive’ to ‘recursive’ to describe this complex dynamic. Arguably, this is because they see their role as seeking the (temporal) truth rather than seeking the boundless factors of deciding well. We see this in the distinction between Thomas Kuhn’s concept of a paradigm shift as a change in the way we conceive of the world and the popular concept of a paradigm shift as a change in the way we see the world that changes the world. By taking a longer view, the crowd shifted Kuhn’s paradigm paradigm.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Another such pattern concerns using temporal tools to find temporal problems to solve. Perhaps the best example of this is the modern economic national accounting system. Imagine a pill that makes people decide better. Releasing this product would change how people decide to live. Some parts of the economy would shrink and other parts would grow. Resources would flow from the shrinking parts to the growing ones. The immediate effect would be a fall in aggregate production and a rise in unemployment. Modern economic science would portray one of the greatest advances in human history as a disaster.

“The problem here is one of how to measure what we need to live well, which calls for knowing the Truth about the Good. Plato only aspired to such knowledge. Only a fool would claim to have found it. From a technical view, the problem of measuring services is universal and the problem of measuring quality is impossibly hard.

“An accounting truism holds that accounting systems promote what we measure at the expense of what we do not measure. Soviet central planners learned this the hard way. When they set screw factory quotas by the quantity of screws produced, factory managers produced too few big screws and too many small screws. When they set quotas by the weight of screws produced, managers produced too many big screws and too few small screws. The solution to our national income accounting problems will be similar to the solution to the Soviet accounting problems. We will replace our decision-making system with one that depends less on problematic measurements. The question is whether we will wait for a major catastrophe before making this change.”

Chapter 3, Conclusion, second paragraph

Changed “our beliefs and reality” to “the world and our beliefs about the world” in the fourth sentence.

Chapter 4, Sovereignty, third paragraph

Changed “modern democracies” to “democratic republics” in the second sentence.

Chapter 4, Boundless Liberalism, last paragraph

“If Franklin were alive today, he would likely remind us that all who would give up essential liberty to purchase a little temporary safety deserve neither liberty nor safety. From the timeless view of science expressed in this letter to Priestley, it takes little to imagine what he would say about the many modern means of protecting the politically powerful at the expense of the rest of humanity, to say nothing of the rest of life.

was changed to:

“If Franklin were alive today, we can easily imagine what he would say about the many modern political means of aiding the powerful at the expense of the rest of humanity, to say nothing of the rest of life.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix A, Less is More, last paragraph

Changed “structure” to “structure **and dynamics**” in the fourth sentence.

Appendix B, Introduction, first paragraph

Changed “so **defined**” to “so **conceived**” in the second sentence.

Changes in Version 2009.01.16

Acknowledgments, last paragraph

Changed “**He**” to “**My father**” in the second sentence.

Preface, twelfth paragraph, last two sentences

“**So conceived, deciding well plays the role in the *intelligent life sciences* that natural selection plays in the biological sciences. It is the idea that pulls the field together into a coherent whole.**”

was deleted.

Preface, thirteenth paragraph

Changed “**;** **the**” to “**.** **The**” in the last sentence before the explanation.

Chapter 1, A Holistic View of Deciding Well, last paragraph, second and third sentences

“From Sowell’s constrained versus unconstrained vision frame, this holistic approach to deciding well calls **not only** for a constrained view **of deciding well**, **but also** for as unconstrained a view **of deciding well** as we can imagine. We use the constrained view to help us solve given problems and the unconstrained view to help us find the best problems to solve.”

were changed to:

“From Sowell’s constrained versus unconstrained vision frame, this holistic approach to deciding well calls both for a constrained view, **which we use to solve given problems**, **and** for as unconstrained a view as we can imagine, **which we use to find problems to solve.**”

Chapter 1, Two Views of Deciding Well, second paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Deleted “**or a temporal scale (time horizon)**” from the third sentence.

Chapter 1, The Need for Timeless Views, last paragraph

Deleted “**to embrace**” from the last sentence.

Chapter 1, Temporal versus Timeless Values, third paragraph

“From the temporal view, **we** base **our** values on what **we** currently know. The temporal concept of deciding well does not include learning; hence **we** must look beyond deciding well to find sources for **our** values. These outside sources include such things as theistic texts, political ideologies, and moral philosophies. From the timeless view, we learn ever more about timeless values by pursuing the timeless end of believing well (the Truth).”

was changed to:

“From the temporal view, **people** base **their** values on what **they** currently know. The temporal concept of deciding well does not include learning; hence **people** must look beyond deciding well to find sources for **their** values. These outside sources include such things as theistic texts, political ideologies, and moral philosophies. From the timeless view, we learn ever more about timeless values by pursuing the timeless end of believing well (the Truth).¹¹”

“¹¹ The change in case from the temporal view third person plural to the timeless view first person plural is not a mistake. As we shall see, we cannot separate the timeless problems other intelligent beings face from the timeless problems we face.”

Chapter 1, Temporal versus Timeless Values, sixth paragraph

Inserted the following paragraph:

“**This deeper problem with inductive reasoning raises the issue of the usefulness of concepts. Imagine an isolated village in an undeveloped tropical country where the only source of fresh water is liquid water that falls from the sky. The villagers use the term ‘rain’ to denote the concept of “the source of water that makes the ground wet.” Given this meaning of ‘rain,’ the claim that the ground is wet because it rained is not only logical but also true by definition. Now imagine that the sun enters a long period of low sunspot activity that lowers the average temperature enough to create dew on cold, humid mornings. Confronted with these new conditions, the villagers face a choice. Do they continue to use ‘rain’ to denote “the source of water that makes the ground wet?” Or do they choose to use ‘rain’ to denote “liquid water that falls from the sky?” This choice, in part, depends on how the villagers use ‘rain’ in their daily lives. For example, if they use ‘rain’ in a rule that tells them when to plant their crops, failure to change either the meaning of ‘rain’ or their planting rule will likely lead to the loss of their seed.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “we” to “people” in the first sentence.

Changed “the rest of us” to “other people” in the last sentence.

Chapter 1, Temporal versus Timeless Values, new ninth paragraph

Changed “we” to “people” in the second sentence.

Changed “each of us” to “each person” and “we” to “people collectively” in the third sentence.

Changed “deciding well” to “believing well” in the fourth sentence

Chapter 1, Temporal versus Timeless Values, new tenth paragraph, fifth and sixth sentences

“This is not a rational process; it is a religious one. It is the mystical process of linking or re-linking to something infinitely greater than ourselves.”

were changed to:

“This is the timeless process of linking or re-linking to something infinitely greater than ourselves.”

Chapter 1, Temporal versus Timeless Values, new tenth paragraph, first footnote, last three sentences

“It includes an atheistic pursuit of the Truth. It also includes Albert Einstein’s dream of understanding God’s thoughts, and the Vedanta school of Indian thought’s goal of the individual soul (*Atma*) merging with the universal soul (*Brahman*).”

were changed to:

“It includes both an atheistic pursuit of the Truth and Albert Einstein’s dream of understanding God’s thoughts.”

Chapter 1, Temporal versus Timeless Values, last paragraph

“In summary, we use values to help us judge deciding well. From the temporal view of deciding well, we base our values on what we currently know. From the timeless view of deciding well, we learn ever more about values by pursuing the timeless end of deciding well (Wisdom). We learn to decide ever better.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In summary, from the temporal view of deciding well, people base their values on what they currently know. In contrast, from the timeless view of deciding well, we learn ever more about values by pursuing the timeless end of deciding well (Wisdom). By doing so, we learn to decide ever better.”

Chapter 2, Timeless Tools for Living Well, second paragraph

Changed “we” to “people” and “to help us find” to “to find” in the first sentence.

Changed “us” to “them” in the last sentence.

Chapter 2, Timeless Tools for Living Well, third paragraph

Changed “to help us find” to “to find” in the first sentence.

Changed “plan” to “live well by planning” and “work” to “working” in the second and third sentences (2 occurrences).

Chapter 2, Timeless Wealth, first paragraph

Deleted the first sentence: “In general, wealth is what we need to achieve our ends.”

Changed “we” to “people” and “we” to “they” in the new first sentence.

Chapter 2, Timeless Consumption, first paragraph

Changed “our actions reveal our preferences” to “actions reveal preferences, which is to say people never make mistakes” in the second sentence.

Changed “good for us” to “good for people” the third sentence.

Changed “bad if we are heading down a dark path” to “bad” in the fifth sentence.

Chapter 2, Tools for Pursuing Wisdom, last paragraph

Changed “: lust, gluttony, greed, sloth, wrath, envy, and pride (Dante’s seven deadly sins)” to “, Dante’s seven deadly sins: lust, gluttony, greed, sloth, wrath, envy, and pride” in the last sentence.

Chapter 2, Human Capital, Work, and Leisure, first paragraph

“From the temporal view of modern economics, human capital is knowledge that raises our income; work is an unpleasant activity that others pay us to perform; and leisure is time spent not working. Our goal is to please ourselves by consuming economic goods during our leisure time. We work in order to consume. Living well calls for balancing work and leisure.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“From the temporal view of modern economics, human capital is knowledge that raises income; work is *an unpleasant* activity that others pay **people** to perform; and leisure is time spent not working. **People please themselves** by consuming economic goods during **their** leisure time. **People** work in order to consume. Living well calls for *balancing* work and leisure.”

Chapter 2, *Human Capital, Work, and Leisure*, second paragraph

Changed “**Our goal is**” to “**We aim**” in the second sentence.

Chapter 2, *Timeless Trade*, last paragraph

Changed “, firms become ever less firm,” to “; **extraordinary business events become ever more ordinary**; firms become ever less firm;” in the third sentence.

Chapter 2, *Three Common Mistakes*, second paragraph

Changed “greater” to “**infinitely** greater” in the last sentence.

Chapter 2, *Timeless Production*, first paragraph

Changed “**we**” to “**people**” in the second sentence (2 occurrences).

Chapter 3, *The Elephant in the Room*, third paragraph

Changed “than ourselves, **which**” to “than ourselves. **This spiritual need**” in the second sentence.

Chapter 3, *The Elephant in the Room*, third paragraph

Changed “**Creator**” to “**Divine**” in the second sentence (2 occurrences).

Changed “**Creator**” to “**Divine**” in the third sentence.

Chapter 3, *The Elephant in the Room*, last paragraph, end

Added the footnote: “**For more on this subject, see Appendix B.**”

Chapter 3, *Revering Life Well*, entire section

Revering Life Well

Again, from the timeless view of deciding well, the timeless pursuit of believing well calls for us to pursue all of the boundless factors of deciding well. When we try to analyze these various pursuits, we keep returning to our starting point. We quickly learn

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

that we are in a mental hall of mirrors from which our **tried and true techniques** cannot help us escape.

“Twentieth-century philosopher John Rawls provides us with a technique that can help us think our way out of this mental hall of mirrors. He asks us to imagine what we should² choose if we were ignorant of the circumstances of our birth.³ For this imagined original position of ignorance to produce a *completely just* timeless end, we must consider what timeless end we should want to guide intelligent life if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of what species we will be and into what era we will be born. From behind this veil of ignorance, we should want all intelligent beings to **revere life well.**”⁴

“**⁴ To revere life well is to pursue the timeless end of a good life for all. This not only helps us satisfy our need to link or re-link with something greater than ourselves, which we may call the timeless end of Wholeness or Mystical Oneness, but also helps us pursue the timeless end of living well. We need other forms of life to live well. For example, we need microorganisms to sustain not only our environment but also our bodies. Further, we can learn from virtually every other form of life. For example, we can learn about composite materials from the fangs of sandworms and about biochemical processes from microorganisms living in extreme environments. For more on the subject of revering life well, see Appendix B.**”

was moved in front of the previous section and changed to:

“Beauty as a Guide to Deciding Well

We can use the “ring of Truth” to help us judge our moral arguments. Pursuing the timeless end of living well (the Good) calls for us to pursue all of the boundless factors of deciding well. However, when we try to analyze these various pursuits using **analytical techniques**, we keep returning to our starting point. We quickly learn that we are in a mental hall of mirrors from which **analytical** techniques cannot help us escape.

“Twentieth-century philosopher John Rawls provides us with a **holistic** technique that can help us think our way out of this mental hall of mirrors. He asks us to imagine what we should² choose if we were ignorant of the circumstances of our birth.³ For this imagined original position of ignorance to produce a *completely just* timeless end, we must consider what timeless end we should want to guide intelligent life if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of what species we will be and into what era we will be born. From behind this veil of ignorance, we should want all intelligent beings to **pursue the timeless end of a good life for all living beings. The most beautiful means of pursuing this end is to pursue the boundless factors of deciding well.**”

Chapter 3, Refining Everyday Thinking, sixth paragraph, end

Added the following sentences:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Our theories that explain may do nothing more than to tell us that we cannot predict what we would like to predict. This is useful information. For example, if our current understanding of weather forecasting tells us that no one can predict the weather in the Indian Ocean two weeks from now, we ought to plan for more than smooth sailing.”

Chapter 3, Refining Everyday Thinking, seventh paragraph

Changed “There is strong reason to believe that” to “From the timeless view of deciding well,” in first sentence.

Chapter 3, Refining Everyday Thinking, ninth paragraph

Changed “Others learn from our experiences. We, in turn, learn from theirs.” to “We learn from the experience of others. Others, in turn, learn from our experiences.”

Chapter 3, Refining Deciding Well, fifth paragraph

Deleted “in defining our civil faith, which is to say the set of theories we publicly proclaim and practice” from the second sentence.

Changed “civil faith” to “civil faith, which is to say our publicly proclaimed and practiced core beliefs,” in the third sentence.

Changed “human beings” to “embodied intelligent beings” in the fifth sentence.

Changed “greater” to “infinitely greater” in the fourth sentence of the last footnote.

Chapter 3, A Crude Look at the Whole, second paragraph

Changed “led to” to “created” in the seventh sentence.

Chapter 3, A Crude Look at the Whole, last paragraph

Changed “revering life” to “deciding” in the second to last sentence.

Chapter 4, Sovereignty, third paragraph

“For a collection of sovereign rights to be secure, those charged with securing the rights must believe that they ought to secure them. Roman Emperor Tiberius needed the goodwill of the Praetorian Guard; pirate Henry Morgan needed the goodwill of his crew; and the leaders of democratic republics need the goodwill of their military and police forces. Further, those charged with securing the rights need the coercive power required to secure them. This need falls with the moral authority of the holders of these rights.”

was reduced to a footnote after the first sentence in the next paragraph and changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“For a collection of sovereign rights to be secure, those charged with securing these rights must believe that they ought to secure them. Roman Emperor Tiberius needed the goodwill of the Praetorian Guard; pirate Henry Morgan needed the goodwill of his crew; and the leaders of democratic republics need the goodwill of their military and police forces. Further, those charged with securing these rights need the coercive power required to secure them. This need tends to vary inversely with the moral authority of the holders of these rights. The more scarce resources spent on securing these rights, the fewer scarce resources are available for pursuing the boundless factors of deciding well. Governments, like people, are subject to virtuous and vicious cycles. Good governments tend to flourish; poor governments tend to fall.”

Chapter 4, Sovereignty, last paragraph

Changed “Governments” to “From the timeless view of believing well, governments” in the first sentence.

Chapter 4, *The Explicit*, third paragraph

Changed “American” to “United States” in the first sentence.

Chapter 4, *The Explicit*, fourth paragraph

Changed “American” to “United States” in the first sentence.

Chapter 4, *The Sovereign Story of Timeless Science*, first paragraph

Changed “American” to “United States” in the first and sixth sentences (2 occurrences).

Chapter 4, *The Sovereign Story of Timeless Science*, last paragraph

Changed “improve decision quality more” to “promote deciding well better” in the fourth sentence.

Chapter 4, *Judge Interventions*, last paragraph

Changed “Three” to “At least three” in the second sentence.

Appendix A, Less is More, first paragraph

Changed “well” to “efficiently” in the first sentence.

Changed “well” to “wisely (efficiently and effectively)” in the second sentence.

Appendix A, Less is More,, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “ought to be” to “ought to become” and “cosmology and physics” to “physics” in the last sentence.

Appendix B, The Farther Reaches of Human Nature, first paragraph

Changed “From the temporal view, one” to “One” in the first sentence.

Appendix B, Worldly Benefits of Detachment, last paragraph

Changed “as we know it” to “as we currently know it” in the first sentence.

Added the following footnote at the end of the second to last sentence:

“⁸ In the words of Albert Einstein, “The most beautiful thing we can experience is the mysterious. It is the fundamental emotion that stands at the cradle of true art and science. He who does not know it and can no longer wonder, no longer feel amazement, is as good as dead, a snuffed out candle. It was the experience of mystery... that engendered religion. A knowledge of the existence of something we cannot penetrate, our perceptions of the profoundest reason and most radiant beauty, which only in their most primitive forms are accessible to our minds — it is this knowledge and this emotion that constitute true religiosity; in this sense, and in this alone, I am a deeply religious man.” Einstein, Albert, “What I Believe,” *Forum and Century* 84 (1930), pp. 193 -194; reprinted in *Ideas and Opinions* (New York: The Modern Library, 1994).”

Appendix B, Personal versus Civil Mysticism, entire section

“Personal versus Civil Mysticism

Although Schweitzer’s mystical concepts may ring true for theists, others will find them too theistic. From the view of timeless science, the problem lies not in how Schweitzer defines his concepts, but rather in his failure to distinguish between personal and civil definitions of his mystical terms. Personal concepts are concepts that we use to guide our personal experiments in living well. Civil concepts are concepts that we use to ensure that our personal experiments in living well fall within the bounds of timeless science. We base our personal concepts on our personal faith, which may be theistic, atheistic, or agnostic. We base our civil concepts on our civil faith, the publicly professed and practiced beliefs that support the collective pursuit of the Good, the Truth, Justice, Wisdom, and Beauty. Schweitzer uses the phrase ‘infinite Being’ to define his mystical concepts. Timeless science calls for a phrase that has less theistic overtones. This work uses the phrase ‘something infinitely greater than ourselves.’”

was deleted.

Appendix B, Balanced Excellence, first paragraph

Changed “to experience mystical oneness with the infinite Being” to “to experience mystical oneness” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “the infinite Being after life” to “the infinite Being after life, **which we may call Bliss**” in the first sentence.

Merged this paragraph with the second paragraph.

Appendix B, Balanced Excellence, second paragraph

Changed “**in** life” to “**during** life” in the all (3 occurrences).

Changed “**eternal mystical union** during an existence after **death**” to “**Bliss** during an existence after **life**” in the fourth sentence.

Appendix B, Heroic Death, first paragraph

Deleted “**in life in a single, final act**” from the last sentence.

Appendix B, Deciding Reverently, first paragraph

Changed “revere life” to “revere life **well**” in the second sentence.

Appendix B, Deciding Reverently, last paragraph

“**In pursuing the timeless end of revering life well, we need to distinguish between personal faith and our civil faith. We are as scientists in a large research institution. We may encourage others to follow our personal research programs in living well. However, we should never try to force others to follow these programs. To do so is to confuse our personal faith with our civil faith. We revere life well by deciding well, not by forcing our personal faith on others.**”

was deleted.

Changes in Version 2009.01.22

Changes prompted by Sally Osborne edit of 2008.12.31 version.

Entire document

Changed format of reference footnotes.

Acknowledgments, fourth paragraph

Changed “**closely**-held” to “**privately**-held” in the first sentence.

Changed “**thirty-fold**” to “**thirtyfold**” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Acknowledgments, fifth paragraph

Changed “ways we cope” to “ways **in which** we cope” in the fifth sentence.

Acknowledgments, last paragraph

Changed single quotation marks to double quotation marks in fifth sentence (2 occurrences).

Preface, first paragraph

Removed periods from the sentences in parentheses in the last sentence.

Preface, fifth paragraph

Changed “**work of** August Comte” to “Auguste Comte’s **law of three phases**” in the first sentence.

Preface, sixth paragraph

Changed “define **to be**” to “define **as**” in the second sentence.

Preface, twelfth paragraph

Changed commas to semicolons in the fourth sentence.

Changed “to say it is the same” to “to say **that** it is the same” in the seventh sentence.

Chapter 1, Setting Concepts Aright, second paragraph, last sentence

“It is the pattern of **bits on a compact disk**, not the **compact disk** itself, which is the knowledge resource.”

was changed to:

“It is the pattern of **material in a book**, not the **material** itself, which is the knowledge resource. **Similarly, it is the pattern of material in an organic molecule, not the material itself, which is the knowledge resource.**”

Chapter 1, Setting Concepts Aright, third paragraph

Changed “to place into use; once in use, they are free” to “to place into use, once in use they are free” in the second sentence.

Chapter 1, A Holistic View of Deciding Well, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “that” to “in which” and “three D’s, deliberation (formal decision-making), decision-rules (rules-of-thumb/heuristic methods)” to “three D’s: deliberation (formal decision-making), decision rules (rules of thumb/heuristic methods)” in the first sentence.

Chapter 1, A Holistic View of Deciding Well, last paragraph

Changed “calls for understanding” to “calls for us to understand” in the second to last sentence.

Chapter 1, Two Views of Deciding Well, third paragraph

Changed “chose” to “have chosen” in all (2 occurrences).

Changed “might” to “may” in the first sentence.

Chapter 1, The EOQ/RTS Example, third paragraph

Changed “encourages” to “encourage” in the third sentence.

Chapter 1, The EOQ/RTS Example, fourth paragraph

Changed commas to semicolons in the sixth sentence.

Chapter 1, The EOQ/RTS Example, sixth paragraph

Changed commas to semicolons in the sixth sentence.

Chapter 1, The EOQ/RTS Example, last paragraph

Changed “higher quality” to “higher-quality” in the last sentence.

Chapter 1, Temporal versus Timeless Values, fifth paragraph

Changed “swan' genus” to “the 'swan' genus” in the sixth sentence.

Chapter 1, Temporal versus Timeless Values, twelfth paragraph

Changed “and factors” to “and the factors” in the first sentence.

Changed “stock brokers” to “stockbrokers” in the second sentence.

Chapter 1, Temporal versus Timeless Values, fourteenth paragraph

Changed the comma into a semicolon in the fourth and fifth sentences (2 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “descendents” to “descendants” and “to those due” to “to those to which they are due” in the fifth sentence.

Chapter 2, Timeless Tools for Living Well, second paragraph

Changed “simply to” to “simply:” in the last sentence.

Chapter 2, *Pleasure and Pain*, fourth paragraph

Changed “knowledge” to “the knowledge” in the second sentence.

Chapter 2, *Wisdom*, third paragraph

Changed “perception, intuition, and reason” to “reason” in the second sentence.

Chapter 2, *Tools for Pursuing Wisdom*, last paragraph

Changed “reason, intuition, and perception” to “ability to decide well” in the third sentence.

Chapter 2, *Human Capital, Work, and Leisure*, first paragraph

Changed “an” to “an” in the first sentence.

Changed “balancing” to “us to balance” in the second sentence.

Chapter 2, *Human Capital, Work, and Leisure*, second paragraph

Changed “combining” to “us to combine” in the second sentence.

Chapter 2, *Trust*, last paragraph

Changed “a trust” to “trust” in the fourth sentence.

Chapter 2, Timeless Taxation, first paragraph, last two sentences

“Taxing owners of houses based on the number of windows will reduce the number of windows in houses. Similarly, taxing medical researchers by the number of animals they use in their experiments will reduce the number of animals used in medical experiments.”

was changed to:

“Taxing the number of windows in houses will reduce the number of windows in houses. Similarly, taxing the number of animals used in medical experiments will reduce the number of animals used in medical experiments.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, The Ring of Truth, second paragraph

Changed “Nineteenth century” to “Nineteen-century” in the first sentence.

Chapter 3, Refining Everyday Thinking, third paragraph, last footnote

Changed “it” to “the relation” in the last sentence.

Chapter 3, Refining Everyday Thinking, fourth paragraph, footnote

Changed “bean field” to “beanfield” in the last sentence.

Chapter 3, Refining Everyday Thinking, ninth paragraph, last footnote

Changed “philosophy of science” to “the philosophy of science” in the first sentence.

Changed “New Jersey” to “NJ” in the last sentence.

Chapter 3, A Crude Look at the Whole, second paragraph, last footnote

Changed “is” to “are” in the first sentence.

Chapter 3, A Crude Look at the Whole, third paragraph

Changed “near freezing” to “near-freezing” in the first sentence.

Chapter 3, A Crude Look at the Whole, last paragraph

Changed “civilization threatening” to “civilization-threatening” in the second to last sentence.

Chapter 4, Sovereignty, last paragraph

Changed “,” to “ — ” and “in accordance” to “according” in the second sentence (2 occurrences).

Chapter 4, Promote Savings for Welfare, last paragraph

Changed “safety net” to “safety-net ” in all (3 occurrences, including footnote).

Changed commas to semicolons in first sentence.

Chapter 4, Boundless Liberalism, first paragraph

Changed “From timeless view” to “From the timeless view ” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “role liberty” to “role **that** liberty ” in the last sentence.

Appendix A, *Folding in Processes*, first paragraph

Changed “assembling” to “assembly ” in the first sentence.

Appendix A, *Machine Tools*, first paragraph

Changed commas to semicolons in the last sentence.

Appendix A, *Production Links*, last paragraph

Changed “out-of-balance” to “out of balance” in the first sentence.

Changed “out of balance” to “out-of-balance ” in the second sentence.

Appendix B, *Schweitzer’s Universal Spiritual Need*, second paragraph

Changed “**are** respond” to “respond” in the fourth sentence.

Appendix B, *Schweitzer’s Universal Spiritual Need*, last paragraph

Changed “slow **a** revolution” to “**a** slow evolution ” in the second sentence.

Changes in Version 2009.01.26

Acknowledgments, first paragraph, last sentence

“I **should like to** acknowledge **twelve** people who helped me find the problems that led to **this work.**”

was changed to:

“**Rather than choosing to acknowledge the countless people who helped me refine this work, I choose to** acknowledge **a dozen people** who helped me find the problems that led to **it.**”

Preface, seventh paragraph

Changed “**timeless**” to “**boundless**” in the last sentence.

Preface, tenth paragraph

Changed “**timeless decision-making** concept” to “concept” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Temporal versus Timeless Values, fourteenth paragraph

Changed “to **which**” to “to **whom**” in the fifth sentence.

Chapter 3, eighth paragraph

Changed “**best**” to “**ideal**” in the fifth sentence.

Chapter 3, *A Crude Look at the Whole*, second paragraph, second, third, and fourth sentences

“**People do not pursue the timeless end of deciding well perfectly. They make mistakes. Poor decisions create greater stress.**”

was deleted.

Chapter 3, *A Crude Look at the Whole*, second paragraph, new fifth sentence

“However, **poor** decisions also embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use.”

was changed to:

“However, **people do not pursue the timeless end of deciding well perfectly. They make mistakes. Poor decisions create or transfer wasteful stress.** Poor decisions also embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use.”

Changes in Version 2009.02.05

Preface, third paragraph, end

Added the sentences: “**In planning terms, basing science on what we currently know is *tactical* in that it concerns the knowledge constraints we currently face. In contrast, basing science on what we need to know in order to believe well is *strategic* in that it transcends the knowledge constraints we currently face. In philosophical terms, basing science on what we currently know is *temporal* in that it is bounded in time. In contrast, basing science on what we need to know in order to believe well is *timeless* in that it is not bounded in time.**”

Preface, third paragraph, sixth

Added the sentences: “**As its name implies, this approach to believing well is timeless.**”

Preface, seventh paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “boundless” back to “timeless” in the first and last sentences.

Preface, ninth paragraph, end

Added the sentence: “It can also help us better prepare for unexpected problems.”

Preface, tenth paragraph

“I wrote this work to help people find better problems to solve.”

was changed to:

“I wrote this work to help people find better problems to solve and to help them better prepare for unexpected problems.”

Changed “timeless” to “endless” in the last sentence.

Chapter 1, Temporal versus Timeless Values, second paragraph

Changed “People who have trouble understanding this ought to imagine using each” to “We may imagine using each of these three concepts” in the second to last sentence.

Changed “They ought to imagine” to “For example may imagine” in the last sentence.

Chapter 1, Temporal versus Timeless Values, third paragraph

Changed “learning;” to “learning ever more about values;” in the second sentence.

Chapter 1, Overview, first paragraph

Changed “this timeless decision-making concept” to “this concept” in the last sentence.

Chapter 3, Refining Everyday Thinking, second to last paragraph, footnote

Changed “historical facts and by the fashions” to “the methods and fashions” in the last sentence.

Chapter 3, A Crude Look at the Whole, second paragraph, second sentence

“Some of this stress flows through the visible economic system as turbulence in the flow of visible economic resources, the symptoms of which include inflation¹⁹ and unemployment.”

¹⁹ Turbulence wastes resources that would otherwise result in more goods and services. Inflation is the result of too much money chasing too few goods and services.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“Some of this stress flows through the economic system as turbulence in the flow of **visible** economic resources.¹⁹”

“¹⁹ **Economic** turbulence wastes resources that would otherwise result in more goods and services. Inflation is the result of too much money chasing too few goods and services. **Hence, the measurable symptoms of this turbulence includes inflation as well as unemployment.**”

Appendix B, The Farther Reaches of Living Well, second paragraph

“From the materialist view, our brains are like computers. Our minds stop working when our brains stop working. From the dualist view, our brains are like intelligent terminals connected to a computer network. Part of us continues after our brains stop working.”

was deleted.

Changes in Version 2009.02.07

Chapter 3, *A Crude Look at the Whole*, second paragraph

“Deciding well creates economic stress, the need to reallocate resources. **Some of this stress flows through the economic system as turbulence in the flow of visible economic resources.**¹⁹ **As the amount of turbulence rises, we spend more resources responding to it, which leaves us fewer resources for deciding well in ways that create stress. If poor decisions only created turbulence, turbulence would tend toward a “natural” level. However, we do not pursue the timeless end of deciding well perfectly. We make mistakes. Poor decisions create or transfer wasteful stress. Poor decisions also embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use. Over time, pursuing the timeless end of deciding well releases the stress embedded in these networks. These unpredictable²⁰ releases tend to disrupt the “natural” level of turbulence.**²¹”

“¹⁹ **Economic** turbulence wastes resources that would otherwise result in more goods and services. Inflation is the result of too much money chasing too few goods and services. **Hence, the measurable symptoms of turbulence include inflation as well as unemployment.**”

was changed to:

“Deciding well creates economic stress, the need to reallocate resources. **If we decided perfectly, this stress would flow smoothly through the economic system until the system**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

fully adjusted to the change that created it. Regrettably, we do not decide perfectly. Poor decisions create or transfer wasteful stress, which in turn creates turbulence in the flow of economic resources. If this were all that poor decisions did, the amount of turbulence would tend toward a “natural” level.¹⁹ However, poor decisions also embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use. Over time, deciding well releases the stress embedded in these networks. These unpredictable²⁰ releases of stress tend to disrupt the “natural” level of turbulence.²¹”

“¹⁹ As the amount of turbulence rises, we spend more resources responding to it, which leaves us fewer resources for deciding well in ways that create stress. Conversely, as the amount of turbulence falls, we spend fewer resources responding to it, which leaves us more resources for deciding well in ways that create stress.”

Chapter 3, *A Crude Look at the Whole*, third paragraph, footnote

Changed “should” to “ought to” in the third sentence.

Chapter 4, *A Sovereign Story of Timeless Science*, last paragraph

“From the timeless view of deciding well, the sovereign rights story above is nothing more than a refinement of the sovereign rights story of the Declaration. The Declaration story calls for us to pursue happiness justly.¹¹ In contrast, the story above calls for us to pursue happiness ever more wisely, hence ever more justly, ever more truly, and ever more coherently.¹² Supported by good policies, this sovereign rights story should promote deciding well better than any other. Handled well, a ship of state so built should cut through turbulent seas like no other.”

were changed to:

“The Declaration story calls for us to pursue happiness justly.¹¹ In contrast, this timeless refinement of the Declaration story calls for us to pursue happiness ever more wisely, hence ever more justly, ever more truly, and ever more coherently.¹² Supported by good policies, it should promote deciding well better than any other sovereign rights story. Handled well, a ship of state so built should cut through turbulent seas like no other.”

Deleted the first sentence in the last footnote: “We can find evidence for the claim that the Declaration story is a crude timeless science story in the history of American attitudes about change.”

Changes in Version 2009.02.12

Preface, fifth paragraph

Changed “we use” to “we use to express our beliefs” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, thirteenth paragraph

Changed “conception” to “concept” in the first sentence.

Preface, second to last paragraph

“To the extent that we decide well, so conceived, there is a direction to cultural evolution. Further, to the extent that we do not decide well, so conceived, we embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use. Unrelieved, the piling up of these mistakes leads to major catastrophes, the sudden release of large amounts of stress. We tend to discover and release more of these embedded mistakes when the stress we experience is great enough to prompt us to decide well but not great enough to retard us from deciding well. Hence, the choice we face is not between good times and bad times; but rather between cycles of good times and bad times, and longer cycles of good times and major catastrophes. Seeking to extend good times is as shortsighted as seeking to prevent all forest fires.”

was changed to:

“To the extent that we decide well, so conceived, there is a direction to cultural evolution. Further, to the extent that we do not decide well, so conceived, we embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use. Unrelieved, the piling up of these mistakes leads to major catastrophes, the sudden release of large amounts of stress.

“We tend to discover and release more of these embedded mistakes when the stress we experience is great enough to prompt us to decide well but not great enough to retard us from deciding well. Hence, the choice we face is not between good times and bad times; but rather between cycles of good times and bad times, and longer cycles of good times and major catastrophes. Seeking to extend good times **by lowering the quality of decisions** is as shortsighted as seeking to prevent all forest fires.”

Preface, sign-off

Changed the date from December 15, 2008 to February 12, 2009.

Chapter 1, Setting Concepts Aright, last paragraph

Changed “deciding *ever better*” to “deciding *ever more wisely*” in the last sentence.

Chapter 1, *Temporal versus Timeless Values*, tenth paragraph

Changed “**timeless** process” to “process” in the fifth sentence.

Chapter 1, *Temporal versus Timeless Values*, thirteenth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**timeless** pursuit” to “**endless** pursuit” in the last two sentence (2 occurrences).

Chapter 1, Overview, second paragraph

Changed “**timeless** pursuit” to “**endless** pursuit” in the first paragraph.

Chapter 3, Pursuing the Ring of Truth, first paragraph

Changed “**timeless** pursuit” to “**endless** pursuit” in the first paragraph.

Chapter 3, *Beauty as a Guide to Deciding Well*, last paragraph

Changed “the boundless factors” to “**all of** the boundless factors” in the last sentence.

Chapter 4, *A Sovereign Story of Timeless Science*, second paragraph

Changed “decide **well**” to “decide **ever more wisely**” in the second and last sentences of the declaration.

Changed “**deciding well**” to “**living ever more wisely**” in the last sentence of the declaration.

Chapter 4, Boundless Liberalism, fourth paragraph

“**Both of these bounded forms of** liberalism use temporal concepts to help us find problems to solve. As we saw in the EOQ/RTS example, the temporal concept of **excellence in means** tends to blind us to learning. Worse, **the temporal concept of deciding well** tends to blind us to the problem of embedding mistakes into our networks of knowledge-in-use, which both slows progress and leads to debacles, the sudden and catastrophic release of “frozen” stress. In contrast, boundless liberalism uses timeless concepts to help us find problems to solve.”

was changed to:

“**Further, both modern and classical** liberalism use **the** temporal concept of **deciding well** to help us find problems to solve. As we saw in the EOQ/RTS example, the temporal concept of **deciding well** tends to blind us to learning. Worse, **it** tends to blind us to the problem of embedding mistakes into our networks of knowledge-in-use, which both slows progress and leads to debacles, the sudden and catastrophic release of “frozen” stress. In contrast, boundless liberalism uses **the** timeless concept of **deciding well** to help us find problems to solve.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, first paragraph

Changed “long run rule” to “long-run rule” in the last sentence.

Preface, third paragraph, last four sentences

“In planning terms, basing science on what we currently know is *tactical* in that it concerns the knowledge constraints we currently face. In contrast, basing science on what we need to know in order to believe well is *strategic* in that it transcends the knowledge constraints we currently face. In philosophical terms, basing science on what we currently know is *temporal* in that it is bounded in time. In contrast, basing science on what we need to know in order to believe well is *timeless* in that it is not bounded in time.”

were deleted.

Preface, sixth paragraph, last sentence

“As its name implies, this approach to believing well is timeless.”

was changed to:

“In philosophical terms, this approach is timeless, not temporal.”

Preface, twelfth paragraph, end

Added the sentence:

“The idea of deciding well as a self-similar universal invariant is a useful refinement of the idea of deciding well as a universal invariant, on which Immanuel Kant based his moral philosophy.”

Chapter 1, Two Views of Deciding Well, second paragraph, footnote, first two sentences

“Note that the formal timeless process of deciding well is the same across all scales of temporal problems. What we deem to be a matter of efficiency or effectiveness changes with the size of the temporal problem we choose, or is chosen for us.”

were changed to:

“Note that what we deem to be a matter of efficiency or effectiveness changes with the size of the temporal problem we choose, or is chosen for us.”

Chapter 1, The EOQ/RTS Example, fifth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**best** choice” to “**wise** choice” in the first sentence.

Chapter 1, Temporal versus Timeless Values, second paragraph, last sentence

“We may imagine using each of these three concepts in conflict with the other two. For example, we may imagine such things as theists without religious zeal, theists without faith in the existence of the divine, theists with faith in the chance to win a trip to Las Vegas, atheists with zealous faith in the non-existence of the divine, and atheists pursuing social justice with religious zeal.”

was deleted.

Chapter 1, Temporal versus Timeless Values, fourth paragraph

Changed “*universal invariant*” to “universal invariant” in the last sentence.

Chapter 1, Temporal versus Timeless Values, tenth paragraph, second to last sentence

“In sharp contrast, Aristotle split the study of nature and motion, **which he called physics**, from the study of first causes and principles, **which he variously called wisdom, first philosophy, or theology.**”

were changed to:

“In sharp contrast, Aristotle split the study of nature and motion from the study of first causes and principles.”

Chapter 2, Timeless Tools for Living Well, first paragraph

Changed “to the endless pursuit of the Good, **which is to say to the timeless process of living well**” to “**timeless end of living well, which is to say** to the endless pursuit of the Good” in the first sentence.

Chapter 3, The Ring of Truth, last paragraph

“**This timeless concept of beauty helps explain why modern educators do not value the fine arts highly. From a modern view, the fine arts do not help us decide well. There is no difference between seeking beauty and seeking Beauty. There is no disputing taste. In contrast, from a timeless view, the fine arts help us to decide wisely. There is a difference between seeking beauty and seeking Beauty. Art ought to do more than shock us or speak to us. Art ought to enlighten us.**”

was deleted.

Chapter 3, Refining Everyday Thinking, second to last paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹¹ This is not to say that history is nothing more than literature. History is literature constrained by the methods and fashions of historians.”

was changed to:

“¹¹ From the modern view, the arts do not help us decide well. There is no difference between seeking beauty and seeking Beauty. There is no disputing taste. In contrast, from the timeless view of believing well, the arts help us to decide well. There *is* a difference between seeking beauty and seeking Beauty. The arts ought to do more than shock us or speak to us. The arts ought to enlighten us. This is not to say that history is nothing more than literature. History is literature constrained by the methods and fashions of historians.”

Chapter 3, Conclusion, second paragraph

Changed “The timeless process of deciding well” to “Pursuing the timeless end of believing well” in the first sentence.

Chapter 4, Sovereignty, first paragraph

Changed “to the endless pursuit of Justice, which is to say to the timeless process of governing well” to “timeless end of governing well, which is to say to the endless pursuit of the Justice” in the first sentence.

Chapter 4, Control the Money Supply Passively, last paragraph

Changed “to prolong good times” to “to prolong good times by lowering the quality of decisions” in the last sentence.

Appendix B, *Einstein’s Twin Warnings*, first paragraph

Changed “timeless process” to “endless process” in the first sentence.

Changes in Version 2009.02.24

Preface, fourth paragraph

Changed “call to mind” to “echo” in first sentence.

Preface, eleventh paragraph

Changed “we need” to “I contend that we need” in the last sentence.

Preface, twelfth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “So conceived, deciding well” to “Deciding well, so conceived,” in the fifth and seventh sentences.

Changed the last sentence from:

“The idea of deciding well as a self-similar universal invariant is a useful refinement of the idea of deciding well as a universal invariant, on which Immanuel Kant based his moral philosophy.”

to:

“Finally, deciding well, so conceived, is *self-refining* in that the process of deciding well and our understanding of the process of deciding well co-evolve.”

Preface, thirteenth paragraph, second sentence

“Deciding well and our understanding of deciding well co-evolve.”

was deleted.

Preface, fourteenth paragraph

Changed “making a civil leap of faith” to “forming a government based on this belief, which in turn calls for making a civil leap of faith” in the last sentence.

Chapter 1, Two Views of Deciding Well, first paragraph, fifth sentence

“Living today well is a temporal end; the process of living well is a timeless end.”

was deleted.

Chapter 2, Tools for Pursuing Wisdom, fifth paragraph

Changed “interfere with our ability to decide well in order to know when we ought to abandon introspection for discipline” to “overwhelm our faculties, hence when we ought to abandon deliberation for discipline” in the third sentence.

Chapter 2, Trade, last paragraph, last footnote

“The new structure of the financial sector was one of many contributing factors to the 2008 financial debacle. A major question for policymakers is how best to learn about how such factors interact with mistakes embedded in our networks of knowledge-in-use. Do we need bad times to reveal how these factors interact with embedded mistakes? Is investor Warren Buffett’s observation that “only when the tide goes out do you discover who’s been swimming naked” true? If so, is it better to have frequent small downturns or less frequent large ones?”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Chapter 2, The Need for Timeless Science, second footnote

Moved the second footnote from the end of the sixth sentence to the end of the fourth sentence.

Chapter 3, Refining Everyday Thinking, last paragraph, footnote, third sentence

“Readers interested in an argument for a holistic approach to believing well based on what modern economists would call the supply side, which is the normal concern of philosophers of science, **will** find one in W. V. O. Quine’s “Two Dogmas of Empiricism.””

was moved to the end of the footnote and changed to:

“Readers interested in an argument for a holistic approach to believing well based on what modern economists would call the supply side, which is the normal concern of philosophers of science, **can** find one in W. V. O. Quine’s “Two Dogmas of Empiricism.””

Chapter 4, Boundless Liberalism, fourth paragraph

Further, both modern and classical liberalism use the temporal concept of deciding well to help us find problems to solve. As we saw in the EOQ/RTS example, the temporal concept of deciding well tends to blind us to learning. **Worse, it** tends to blind us to the problem of embedding mistakes into our networks of knowledge-in-use, which both slows progress and leads to debacles, the sudden and catastrophic release of “frozen” stress. **In contrast, boundless liberalism uses the timeless concept of deciding well to help us find problems to solve.”**

was changed to:

“Further, **boundless liberalism uses the timeless concept of deciding well to help us find problems to solve. In contrast,** both modern and classical liberalism use the temporal concept of deciding well to help us find problems to solve. As we saw in the EOQ/RTS example, the temporal concept of deciding well tends to blind us to learning. **It also** tends to blind us to the problem of embedding mistakes into our networks of knowledge-in-use, which both slows progress and leads to debacles, the sudden and catastrophic release of “frozen” stress.”

Chapter 4, Boundless Liberalism, last paragraph, first two sentences

“**Benjamin Franklin provides us with one of the clearest expressions of boundless liberalism.** In the midst of a war that started in his boyhood home and spread across the world, Franklin wrote the following to his fellow amateur scientist, Joseph Priestley.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“Though untried as a means of governing ourselves, the desire for boundless liberalism is not new. In the midst of a war that started in his boyhood home and spread across the world, Benjamin Franklin wrote the following to his fellow amateur scientist, Joseph Priestley.”

Chapter 4, Boundless Liberalism, last paragraph, end

Added the sentence:

“Human beings learn what they now improperly call humanity by pursuing the timeless end of deciding well (Wisdom).”

Chapter 4, Summary and Conclusion, first paragraph, last sentence

“We may use these tools to help us find better problems to solve; to help us cooperate with others of different personal faiths; and to help us know when we are acting as wolves, or as sheep, rather than as intelligent beings pursuing happiness ever more wisely.”

was changed to:

“We may use these tools to help us find problems to solve, prepare for unexpected problems, cooperate with others, and know when we are acting as animals filling a role in society rather than as intelligent beings pursuing happiness ever more wisely. O that human beings would cease to act like animals, and that they would at length learn what they now improperly call the pursuit of happiness!”

Appendix B, Introduction, first paragraph

“This work defines deciding well as a *self-similar universal invariant*, which is to say as something that remains the same regardless of the temporal problem scale we choose, and regardless of our circumstances and beliefs. We can learn ever more about deciding well, so conceived, by studying it at various temporal problem scales, in various decision-making circumstances, and within various belief systems. In aspiring to be wise, we can learn much by considering extreme cases. Here, we consider the religious aspects of living well.”

was changed to:

“The case for pursuing the timeless ends of believing well (the Truth), living well (the Good), deciding well (Wisdom), living and working with others well (Justice), and contemplating well (Beauty) rests on the belief that these ends exist. From the timeless view of believing well, we can either pretend to be certain that this belief is true or false, or aspire to be wise by seeking to discover whether this belief is true or false. In aspiring

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

to be wise, we may learn much by considering extreme cases. Here, we consider the religious aspects of living well.”

Changes in Version 2009.02.28

Preface, ninth paragraph

“Pursuing timeless ends well calls for distinguishing between terms (containers for meaning) and concepts (meanings). I use the linguistic convention of surrounding terms with single quotation marks and concepts with double quotation marks. For example, the term ‘wealth’ may denote either the temporal concept of “what we need to satisfy our wants” or the timeless concept of “what we need to live well.” Similarly, the term ‘knowledge resources’ may denote either the temporal concept of “currently useful skills and expertise” or the timeless concept of “useful patterns of energy, matter, space, and time.” In pursuing timeless ends well, I contend that we need temporal concepts to solve temporal problems and timeless concepts to choose temporal problems to solve.”

was deleted.

Chapter 1, Setting Words Aright, title

Changed “Concepts” back to “Words” in the title.

Chapter 1, Setting Words Aright, end

Added the paragraph:

“As we shall see, deciding ever more wisely calls for distinguishing between terms (containers for meaning) and concepts (meanings). This work uses the linguistic convention of surrounding terms with single quotation marks and concepts with double quotation marks. For example, the term ‘up’ may denote either the concept of “north” as when we use it to describe a direction on a conventional two-dimensional map, or the concept of “away from the center” as when we use it to describe a direction on a three-dimensional globe. The meaning of the term ‘up’ depends on the context in which we use it.”

Chapter 1, Two Views of Deciding Well, last paragraph

Changed “the timeless view” to “a timeless view” in the first sentence.

Chapter 1, The Need for Timeless Views, last paragraph, last sentence

“In Edwin Abbott’s novel *Flatland*, characters perform apparent miracles by breaking through dimensional boundaries. Flatlanders who have been lifted above their two-

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

dimensional world find it impossible to explain **what happened in higher planes of existence to their fellows** who believe that the terms ‘up’ and ‘north’ refer to the same concept.¹⁰ Similarly, Toyota has performed apparent miracles by quickly pushing back its “efficiency frontiers.” It has thrived by learning well. Toyota production team members find it impossible to explain what they do to people who believe the terms ‘excellence in means’ and ‘efficiency’ refer to the same concept. Lacking the concepts they need to “see through” “efficiency frontiers,” these residents of the modern age fail to grasp a larger truth. To grasp this truth, they need a timeless view of deciding well.”

was changed to:

“In Edwin Abbott’s novel *Flatland*, characters perform apparent miracles by breaking through dimensional boundaries. **Residents of the two-dimensional world of Flatland who have traveled to the three-dimensional world of Spaceland** find it impossible to explain **these apparent miracles** to **residents of Flatland** who believe that the terms ‘up’ and ‘north’ refer to the same concept. **Lacking the concepts they need to “see through” the boundary between the second and third dimensions, these residents of Flatland fail to grasp a larger truth. To grasp this truth, they need a three-dimensional view of the world.**¹⁰

“Similarly, Toyota has performed apparent miracles by quickly pushing back its “efficiency frontiers.” It has thrived by learning well. Toyota production team members find it impossible to explain **these apparent miracles** to people who believe the terms ‘excellence in means’ and ‘efficiency’ refer to the same concept. Lacking the concepts they need to “see through” “efficiency frontiers,” these residents of the modern age fail to grasp a larger truth. To grasp this truth, they need a timeless view of deciding well, **a view that allows them to “see” deeply into the fourth dimension of time. As in physics, a worldview that unifies the dimensions of space and time provides us with a more complete and coherent view of the world.**”

Chapter 1, Temporal versus Timeless Values, third paragraph

Changed “**the** temporal view” to “**a** temporal view **of deciding well**” in the first sentence.

Changed “**the** timeless view” to “**a** timeless view **of deciding well**” in the last sentence.

Chapter 1, Temporal versus Timeless Values, seventh paragraph

Changed “the **temporal** view” to “the **modern** view” in the first sentence.

Chapter 1, Temporal versus Timeless Values, eighth paragraph

Changed “**the** timeless view” to “**a** timeless view” in the first sentence.

Chapter 1, Temporal versus Timeless Values, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “the timeless view” to “this unified, timeless view” in the first sentence.

Chapter 1, Temporal versus Timeless Values, ninth paragraph, last two sentences

“From the timeless view of believing well, this modern answer is temporal, not timeless. As such, it tends to blind us to the Good, the Truth, Justice, and Wisdom.”

were deleted.

Chapter 1, Temporal versus Timeless Values, last paragraph

“In summary, from the temporal view of deciding well, people base their values on what they currently know. In contrast, from the timeless view of deciding well, we learn ever more about values by pursuing the timeless end of deciding well (Wisdom). By doing so, we learn to decide ever better.”

was changed to:

“In summary, from a temporal view of believing well, people base their values on what they currently know. The source of this knowledge lies beyond the temporal process of believing well. In contrast, from the timeless view of believing well, our values emerge from the endless process of deciding well. By deciding well, we learn to decide ever better. We learn to distinguish between bounded and boundless factors of deciding well; we learn that the pursuits of the boundless factors of deciding well are intertwined; and we learn that we ought to follow pursue this intertwined pursuit. In short, we learn that there is a direction to cultural evolution that holds true for all intelligent life.”

Chapter 2, Timeless Tools for Living Well, second paragraph

Changed “the temporal view” to “a temporal view” in the first sentence.

Chapter 2, Timeless Wealth, first paragraph

Changed “the temporal view” to “a temporal view” in the first sentence.

Chapter 2, Timeless Taxation, second paragraph

Changed “a timeless view” to “the timeless view” in the first sentence.

Chapter 2, Timeless Production, first paragraph

Changed “the temporal view” to “a temporal view of deciding well” in the second sentence.

Chapter 2, Timeless Profit, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**the** temporal view” to “**a** temporal view” in the second sentence.

Chapter 3, Refining Everyday Thinking, ninth paragraph

Changed “**From this timeless view, every**” to “**Every**” in the third sentence.

Chapter 4, Sovereignty, first paragraph

Changed “**the** temporal view” to “**a** temporal view” in the second sentence.

Appendix B, *Heroic Death*, end

Added the paragraph:

“How do we best protect ourselves from such beliefs? Do we learn to ignore our need for mystical oneness, or do we learn to distinguish between sacred and profane means of satisfying our need for mystical oneness? From the timeless view of deciding well, which is also the timeless view of science, it is better to learn to distinguish between sacred and profane means of satisfying our need for mystical oneness. Sacred means are those that are wise, good, true, just, and beautiful. Profane means are those that are foolish, bad, false, unjust, or ugly.”

Changes in Version 2009.03.04

Chapter 3, Refining Everyday Thinking, tenth paragraph

“**This timeless concept of science provides us with a timeless means** of organizing intellectual work into fields of study. **Rather than grouping these fields into the natural sciences, the social sciences, and the humanities, it tells us that we ought to group them into** the *true sciences*, the *intelligent life sciences*, and the *arts*. Like the natural sciences, the true sciences would include all fields that seek to refine our beliefs about the Truth without concern for the Good, Justice, or Wisdom. Unlike the natural sciences, the true sciences would not imply that the beliefs and actions of intelligent life are not a part of nature.”

was changed to:

“Let us quickly review what underlies this timeless concept of science. The problem of believing well is boundless. We address boundless problems, not solve them. In the words of Dwight Eisenhower, which call to mind the incompleteness theorems of Kurt Gödel, “If a problem cannot be solved, enlarge it.” Enlarging the problem of believing well to the limits of imagination calls for considering what we need to believe well. These things include such boundless factors of deciding well as the Good, the Truth, Wisdom, Justice, and Beauty.”¹¹

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In contrast, the modern way of thinking about science as the temporal end of believing well concerns what the producers of knowledge are able to supply under current constraints. As we saw in the EOQ/RTS example, temporal views tend to blind us to timeless ends. Here, the modern view of science as the temporal end of believing well tends to blind us to the timeless end of believing well (the Truth), and so to the timeless ends of living well (the Good), deciding well (Wisdom), living and working with others well (Justice), and contemplating well (Beauty).

“We can see this tendency in the modern, temporal way of organizing academic fields into the *natural sciences*, the *social sciences*, and the *humanities*. From the timeless view of believing well, we ought to replace these temporal categories with the *true sciences*, the *intelligent life sciences*, and the *arts*. Like the natural sciences, the true sciences would include all fields that seek to refine our beliefs about the Truth without concern for the Good, Justice, or Wisdom. Unlike the natural sciences, the true sciences would not imply that the beliefs and actions of intelligent life are not a part of nature.”

“¹¹ In modern economic terms, this argument for a holistic approach to believing well concerns the demand side of believing well. Readers interested in a supply-side argument for a holistic approach to believing can find one in W. V. O. Quine’s “Two Dogmas of Empiricism.””

Chapter 3, Refining Everyday Thinking, second to last paragraph

“The arts would include all fields that aim at the ring of Truth rather than the Truth itself. Like the humanities, the arts would concern all of the boundless factors of deciding well. Unlike the humanities, the arts would include what forms of intelligent life as yet unknown create.

was changed to:

“The arts would include all fields that aim at the ring of Truth rather than the Truth itself. Like the humanities, the arts would include what human beings create. Unlike the humanities, the arts would also include what other intelligent beings create.”

Chapter 3, Refining Everyday Thinking, last paragraph, footnote

“¹² This section contains an argument for a holistic approach to believing well based what we need to know in order to decide well. Modern economists would call this working the demand side of believing well. The problem of believing well is boundless. We address boundless problems, not solve them. In the words of Dwight Eisenhower, which call to mind the incompleteness theorems of Kurt Gödel, “If a problem cannot be solved, enlarge it.” Enlarging the problem of believing well to the limits of imagination calls for considering the demand side of believing well. Readers interested in an argument for a holistic approach to believing well based on what modern economists would call the supply side, which is the normal concern of philosophers of science, can find one in W. V. O. Quine’s “Two Dogmas of Empiricism.””

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Changes in Version 2009.03.06

Acknowledgments, fifth paragraph

Changed “**dramatically** lowers” to “lowers” in the third sentence.

Chapter 3, Refining Deciding Well, last paragraph

Changed “**concept of deciding well**” to “**concept of deciding well that is independent of our circumstances and beliefs**” in the third sentence.

Changed “**concept**” to “**universal, unvarying concept**” in the last sentence.

Chapter 2, Timeless Profit, first paragraph

Changed “**a decision or a series of decisions**” to “**an endless series of decisions**” in the third sentence.

Chapter 3, Refining Everyday Thinking, sixth paragraph

Changed “**theories**” to “**stories**” in the third sentence.

Chapter 3, Refining Deciding Well, fourth paragraph

Changed “**concept**” to “**concept for this purpose**” in the sixth sentence.

Changed “**We**” to “**Policymakers**” in the last sentence.

Chapter 3, Refining Deciding Well, last paragraph

Changed “**theories**” to “**stories**” in the last sentence.

Chapter 4, Sovereignty, first paragraph

Changed “**well**” to “**well**” in the last sentence.

Chapter 4, Boundless Liberalism, second paragraph

“Boundless liberalism differs markedly from modern liberalism. **From the timeless view of deciding well, modern liberalism puts policymakers in the role of parents and the rest of us in the role of children. This conflicts with the idea that we are all researchers in the**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

research program of, by, and for intelligent life. Further, the modern liberal goal of social justice is nothing more than tribal justice in modern garb.”

was changed to:

“Boundless liberalism differs markedly from modern liberalism. Modernism reduces human beings to social animals. This leads modern liberals to seek social justice rather than Justice. From the timeless view of deciding well, we are intelligent beings pursuing happiness ever more wisely, not social animals pursuing happiness within what we currently believe is our society. Social justice is nothing more than tribal justice in modern garb.”

Chapter 4, Boundless Liberalism, fourth paragraph, first two sentences

“Further, boundless liberalism uses the timeless concept of deciding well to help us find problems to solve. In contrast, both modern and classical liberalism use the temporal concept of deciding well to help us find problems to solve.”

were changed to:

“Further, boundless liberalism differs from both modern and classical liberalism in that it uses the timeless rather than the temporal concept of deciding well to help us find problems to solve.”

Chapter 4, Summary and Conclusion, first paragraph

Changed “others” to “others of different personal faiths” in the last sentence.

Appendix B, Worldly Benefits of Detachment, last paragraph

Deleted the footnote:

“In the words of Albert Einstein, “The most beautiful thing we can experience is the mysterious. It is the fundamental emotion that stands at the cradle of true art and science. He who does not know it and can no longer wonder, no longer feel amazement, is as good as dead, a snuffed out candle. It was the experience of mystery... that engendered religion. A knowledge of the existence of something we cannot penetrate, our perceptions of the profoundest reason and most radiant beauty, which only in their most primitive forms are accessible to our minds — it is this knowledge and this emotion that constitute true religiosity; in this sense, and in this alone, I am a deeply religious man.” Einstein, Albert, “What I Believe,” *Forum and Century* 84 (1930), pp. 193 -194; reprinted in *Ideas and Opinions* (New York: The Modern Library, 1994).”

Appendix B, Balanced Excellence, title

Changed the title to “Experiencing the Mysterious.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix B, Experiencing the Mysterious, first paragraph

Inserted the paragraph:

“Pursuing the timeless end of deciding well wisely calls for us not only to create but also to destroy mental models of the world. To follow the path that leads us ever closer to the Truth, the Good, Wisdom, Justice, and Beauty, we need to distinguish between those mental creations that are temporal and those that are timeless, never forgetting that what is truly timeless will always remain beyond our grasp. It is our lot in life to need faith in mental creations in order to live well, but to need mystical oneness in order to live ever more wisely. In the words of Albert Einstein:

“The most beautiful thing we can experience is the mysterious. It is the fundamental emotion that stands at the cradle of true art and science. He who does not know it and can no longer wonder, no longer feel amazement, is as good as dead, and his eyes are dimmed. It was the experience of mystery — even if mixed with fear — that engendered religion. A knowledge of the existence of something we cannot penetrate, our perceptions of the profoundest reason and most radiant beauty, which only in their most primitive forms are accessible to our minds — it is this knowledge and this emotion that constitute true religiosity; in this sense, and in this alone, I am a deeply religious man.”⁸”

⁸ Einstein, Albert, “What I Believe,” *Forum and Century* 84 (1930), pp. 193–194; reprinted in *Ideas and Opinions* (New York: Three Rivers Press, 1995), pp. 8-11.”

Appendix B, Deciding Reverently, first paragraph

Changed “We” to “In pursuing the sacred, which is to say in pursuing the timeless end of deciding well, we” in the last sentence.

Changes in Version 2009.03.16

Entire Work, subtitle

Changed subtitle from “A Fractal View of Intelligent Action” to “An Invariant View of Deciding Well.”

Acknowledgments, fifth paragraph

Deleted “Star Forms,” from the first sentence.

Acknowledgments, fifth paragraph

Changed “Star Forms” to “the printing business” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface sixth paragraph, last sentence

“In philosophical terms, this approach is timeless, not temporal.”

was changed to:

“From this timeless view, what Benjamin Franklin called *true science* is a special case.”

Preface seventh paragraph

“To be timeless, science must address the two-way relation between the world and the stories we use to explain the world. We base the stories we use to explain the world on the world. When we act on these stories, we change the world. We can address this problem, which modern philosophers of science call the *reflexivity problem*, by thinking of ourselves as embodied rather than unembodied intellects. The harsh fact of our existence as embodied intellects reminds us that the endless pursuit of believing well is an economic process, which is to say a process subject to constraints. From this timeless view, what Benjamin Franklin called *true science* is a special case.”

was deleted.

Preface tenth paragraph, first two sentences

“From an academic view, this work provides a basic insight into how intelligent beings create and use knowledge. Acting intelligently calls for us to decide well.”

was changed to:

“From an academic view, this work puts forth a model of cultural evolution that plays the role in the *intelligent life sciences* that natural selection plays in the biological sciences. It is the idea that pulls the field together into a coherent whole. The basic argument is remarkably simple.”

Preface second to last paragraph, first sentence

“We tend to discover and release more of the mistakes embedded in our networks of knowledge-in-use when the stress we experience is great enough to prompt us to decide well but not great enough to retard us from deciding well.”

was changed to:

“This insight into how intelligent beings decide well has profound implications for what modern economists call macroeconomics. Deciding well, so conceived, creates economic stress, the need to reallocate resources. If we decided perfectly, this stress would flow smoothly through the economic system until the system fully adjusts to the change that created it. Regrettably, we do not decide perfectly. Deciding imperfectly

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

creates or transfers wasteful stress, which in turn creates turbulence in the flow of economic resources. If this were all deciding imperfectly did, the amount of turbulence would tend toward a “natural” level. However, deciding imperfectly also embeds mistakes into, or reinforce mistakes in, our networks of knowledge-in-use. Over time, deciding well releases the stress “frozen” in these networks. These unpredictable releases of stress tend to disrupt the “natural” level of turbulence. Responding to these periods of “unnatural” turbulence with policies that lower turbulence by lowering the quality of decision-making embeds more mistakes into our networks of knowledge-in-use, thereby creating the conditions for even greater releases of stress in the future.”

Chapter 1, A Holistic View of Deciding Well, third paragraph

Changed “a metaphor that likens governments to families” to “metaphors” in the first sentence.

Chapter 1, A Holistic View of Deciding Well, last paragraph

Changed “As we shall see, we” to “We” in the first sentence.

Changed “From” to “Using” in the second sentence.

Changed “From” to “Using” in the third sentence.

Chapter 1, Two Views of Deciding Well, fourth paragraph

Changed “decide ever better” to “decide ever more wisely” in the last sentence.

Chapter 1, The Need for Timeless Views, last paragraph

Changed “a worldview that unifies” to “unifying” in the last sentence.

Chapter 1, Temporal versus Timeless Values, third paragraph

Changed “timeless view” to “timeless view of deciding well put forth in this work” in the last sentence.

Chapter 1, Temporal versus Timeless Values, third paragraph

Changed “speed of light” to “speed of light in empty space” in the last sentence.

Chapter 1, Temporal versus Timeless Values, fourteenth paragraph

Changed “boundless factors of deciding well” to “timeless end of deciding well” in the second sentence.

Chapter 1, Temporal versus Timeless Values, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In summary, from a temporal view of **believing** well, people base their values on what they currently know. The source of this knowledge lies beyond the temporal process of **believing** well. In contrast, from **the timeless** view of believing well, our values emerge from the endless process of deciding well. By deciding well, we learn to decide ever **better**. We learn to distinguish between bounded and boundless factors of deciding well; we learn that the pursuits of the boundless factors of deciding well are intertwined; and we learn that we ought to **follow pursue this intertwined pursuit. In short, we learn that there is a direction to cultural evolution that holds true for all intelligent life.**”

were changed to:

“In summary, from a temporal view of **deciding** well, people base their values on what they currently know. The source of this knowledge lies beyond the temporal process of **deciding** well. In contrast, from **this holistic** view of **deciding** well, **which we may call the invariant view of deciding well**, our values emerge from the endless process of deciding well. By deciding well, we learn to decide ever **more wisely**. We learn to distinguish between bounded and boundless factors of deciding well; we learn that the pursuits of the boundless factors of deciding well are intertwined; and we learn that we ought to **pursue the timeless ends of living well (the Good), believing well (the Truth), deciding well (Wisdom), and living and working with others well (Justice). The difference between a temporal view and the invariant view of deciding well is the difference between thinking in terms of results and thinking in terms of endless processes. From a temporal view of deciding well, we can never be certain that we ought to pursue the timeless ends of the Good, the Truth, Wisdom, and Justice. In contrast, from the invariant view of deciding well, we can either pretend to be certain that we ought *not* to pursue these timeless ends, or aspire to be wise by seeking to discover whether we ought *not* to pursue them, which we do by pursuing them.**”

Chapter 1, Overview, first paragraph

Changed “**timeless** concept” to “**invariant** concept” in the first sentence.

Changed “this concept” to “this **invariant** concept” in the last sentence.

Chapter 2, Timeless Tools for Living Well, first paragraph

Changed “**timeless** concept of deciding well” to “**invariant** concept of deciding well” in the first sentence.

Chapter 2, Timeless Tools for Living Well, third paragraph

Changed “**timeless** view of deciding well” to “**invariant** view of deciding well” in the last sentence.

Chapter 2, Timeless Wealth, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “a temporal view of **living** well” to “**the** temporal view **of modern economics**” in the first sentence.

Changed “**timeless** view of **living** well” to “**invariant** view of **deciding** well” in the second sentence.

Chapter 2, Timeless Consumption, first paragraph

Changed “the **timeless** view of deciding well” to “the **invariant** view of deciding well” in the fourth sentence.

Chapter 2, Wisdom, first paragraph

Changed “**timeless** view of **living** well” to “**invariant** view of **deciding** well” in the first sentence.

Chapter 2, Human Capital, Work, and Leisure, second paragraph

Changed “**timeless** view of **living** well” to “**invariant** view of **deciding** well” in the first sentence.

Chapter 2, Timeless Trade, second paragraph

Changed “**timeless** view of deciding well” to “**invariant** view of deciding well” in the second sentence.

Chapter 2, Timeless Taxation, first paragraph

Changed “a temporal view” to “**the** temporal view **of modern economics**” in the first sentence.

Chapter 2, Timeless Taxation, last paragraph

Changed “**timeless** view” to “**invariant** view **of deciding well**” in the second sentence.

Chapter 2, Timeless Production, first paragraph

Changed “a temporal view” to “**the** temporal view **of modern economics**” in the second sentence.

Changed “**timeless** view” to “**invariant** view **of deciding well**” in the fourth sentence.

Chapter 2, Timeless Profit, first paragraph

Changed “a temporal view” to “**the** temporal view **of modern economics**” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**timeless** view of deciding well” to “**invariant** view of deciding well” in the third sentence.

Chapter 3, Pursuing the Ring of Truth, first paragraph

Changed “**timeless** view of deciding well” to “**invariant** view of deciding well” in the first sentence.

Chapter 3, Pursuing the Ring of Truth, second paragraph

Changed “ancient belief” to “ancient, **mystical** belief” in the first sentence.

Changed “**ancient, poetic** belief” to “**mystical** belief” in the third sentence.

Chapter 3, Pursuing the Ring of Truth, third paragraph, last sentence

“**Learning about the patterns of nature** may turn Edo period architecture from being **boring** to being **beautiful**.”

was changed to:

“**It may also** turn **folk music** from being **beautiful** to being **boring**.”

Chapter 3, Pursuing the Ring of Truth, last paragraph, end

Added the paragraph:

“**This simple concept of beauty is itself beautiful. It works from the realm of temporal science to the realm of timeless art. Such is the beauty of self-similarity.**”

Chapter 3, *Beauty as a Guide to Deciding Well*, last paragraph

Changed “**think**” to “**reason**” in the first sentence.

Chapter 3, *The Elephant in the Room*, second and third paragraphs, last sentence

“**We learn to decide ever better.**”

was changed to:

“**Deciding well and our understanding of deciding well co-evolve.**”

Chapter 3, *The Elephant in the Room*, third paragraph

Changed “decide ever **better**” to “decide ever **more wisely**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, Refining Everyday Thinking, seventh paragraph

Changed “**From the timeless view of deciding well, whenever**” to “**Whenever**” in the first sentence.

Changed “the stories **we use to guide our actions**” to “**these stories**” in the third sentence.

Chapter 3, Refining Everyday Thinking, ninth paragraph

Changed “**timeless view of deciding well**” to “**invariant view of deciding well**” in the second sentence.

Chapter 3, Refining Everyday Thinking, twelfth paragraph

Changed “**timeless view of believing well**” to “**invariant view of deciding well**” in the second sentence.

Chapter 3, Refining Everyday Thinking, last paragraph

Changed “**timeless view of believing well**” to “**invariant view of deciding well**” in the first sentence.

Changed “to carving nature at its joints **than the modern scheme does**” to “**than the modern scheme does to carving nature at its joints**” in the last sentence.

Chapter 3, Refining Deciding Well, first paragraph

Changed “explain **how to decide well**” to “explain” in the first sentence.

Chapter 3, Refining Deciding Well, third paragraph, last sentence

“The rub is that we do not know exactly what it is that we ought to seek.”

was changed to:

“The rub is that we do not know exactly what it is that we ought to seek, **which is to say that we do not know how to define ‘wealth’ exactly.**”

Chapter 3, Refining Deciding Well, fourth and fifth paragraphs

“**From the timeless view of deciding well, defining what we ought to seek** as something other than those things that we need to decide well leads us to embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use; that is, into our markets, technologies, legal systems, languages, and cultures. The greatest danger is in public policy. We tend to discover and correct our private mistakes. In contrast, policymakers

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

often fail to discover and correct their mistakes. The classic example is the mercantile system, which defines **what policymakers ought to seek** — wealth — as precious metal coins and bullion. The modern economic concept of wealth is much better than this concept for **this purpose**. **However, it still tends to blind us to better problems to solve. Policymakers would do even better with the timeless concept of wealth.**

“We can envision **a decision science** based on pursuing the timeless concept of wealth.¹⁶ **We can base** the stories that we use to explain **what happens** on the set of all stories that we use to define what we need to live well.¹⁷ We can then refine our **civil faith, which is to say our publicly proclaimed and practiced core beliefs**, by weeding out members of this set. For example, we **ought to** weed out all those stories that consider only our bodies, only our minds, or only our spirits. To think of ourselves as animals, as computers, or as angels, rather than as embodied intelligent beings, is certain to embed major mistakes into our networks of knowledge-in-use. We ought to consider our bodies, minds, and spirits.¹⁸”

“¹⁶ **Although we lack the knowledge to agree on a story about what we need to live well, we have the knowledge to agree on a research program for learning what we need to live well. As a group, stories that look to our nature to explain how to live well are more successful than stories that look elsewhere.**”

were changed to:

“**Defining wealth** as something other than those things that we need to decide well leads us to embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use; that is, into our markets, technologies, legal systems, languages, and cultures. The greatest danger is in public policy. We tend to discover and correct our private mistakes. In contrast, policymakers often fail to discover and correct their mistakes. The classic example is the mercantile system, which defines **wealth** as precious metal coins and bullion. The modern economic concept of wealth has proven to be much better than this concept for **finding problems to solve**.

“**Just as Taiichi Ohno envisioned a research program based on refining knowledge of producing in batches well, we can envision a civil research program for refining our knowledge of deciding well** based on pursuing the timeless concept of wealth.¹⁶ **This calls for basing** the stories that we use to explain **deciding well** on the set of all stories that we use to define what we need to live well.¹⁷ We can then refine our **beliefs about deciding well** by weeding out members of this set. For example, we **can** weed out all those stories that consider only our bodies, only our minds, or only our spirits. To think of ourselves as animals, as computers, or as angels, rather than as embodied intelligent beings, is certain to embed major mistakes into our networks of knowledge-in-use. We ought to consider our bodies, minds, and spirits.¹⁸”

“¹⁶ **This research program helps us choose not only how best to pursue the Truth, the Good, Wisdom, and Beauty, but also how best to pursue Justice. In other words, it helps**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

us choose not only what we ought to want in our personal lives, but also what we ought to want in our public lives. This is the subject of the next section.”

Chapter 3, Refining Deciding Well, sixth paragraph

Changed “temporal stories” to “temporal stories from the set of stories we use to explain deciding well” in the first sentence.

Changed “efficiency” to “excellence in means (efficiency)” in the second sentence.

Chapter 3, Refining Deciding Well, last paragraph

Changed “set of stories that defines our civil faith” to “sets of stories that we use to define what it is to decide well” in the first sentence.

Chapter 3, A Crude Look at the Whole, second paragraph

Changed “Poor decisions create or transfer” to “Deciding imperfectly creates or transfers” in the fourth sentence.

Changed “poor decisions” to “deciding imperfectly” in the fifth sentence.

Changed “Poor decisions also embed mistakes into, or reinforce mistakes in” to “Deciding imperfectly also embeds mistakes into, or reinforces mistakes in” in the sixth sentence.

Chapter 4, Sovereignty, first paragraph

Changed “timeless concept of deciding well” to “invariant concept of deciding well” in the first sentence.

Deleted the second sentence: “From the modern, temporal view, governing well is a matter of administering justice well.”

Changed “In contrast, from the timeless view of governing well” to “From the invariant view of deciding well” in the new second sentence.

Chapter 4, *The Explicit Experiment*, second paragraph, last footnote

Merged this footnote into the preceding footnote.

Chapter 4, Sovereignty, third paragraph

Changed “the timeless view of governing well” to “the invariant view of deciding well” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, A Sovereign Story of Timeless Science, last paragraph, second footnote

“¹² A timeless science story should lead to a culture that embraces “thriving in winds and surviving in gales of creative destruction.” Alexis de Tocqueville claimed to have found such a culture during his famous journey across the United States in 1831–32: “Born often under another sky, placed in the middle of an always moving scene, himself driven by the irresistible torrent which draws all about him, the American has no time to tie himself to anything, he grows accustomed only to change, and ends by regarding it as the natural state of man. He feels the need of it, more he loves it; for the instability, instead of meaning disaster to him, seems to give birth only to miracles all about him (Pierson, George W., *Tocqueville and Beaumont in America*, New York: Oxford University Press, 1938, p. 119).” **After the corruption of the Declaration story by modernism, this claim holds more hope than substance.**”

was moved to the end of the paragraph and changed to:

“¹² A timeless science story should lead to a culture that embraces “thriving in winds and surviving in gales of creative destruction.” Alexis de Tocqueville claimed to have found such a culture during his famous journey across the United States in 1831–32: “Born often under another sky, placed in the middle of an always moving scene, himself driven by the irresistible torrent which draws all about him, the American has no time to tie himself to anything, he grows accustomed only to change, and ends by regarding it as the natural state of man. He feels the need of it, more he loves it; for the instability, instead of meaning disaster to him, seems to give birth only to miracles all about him (Pierson, George W., *Tocqueville and Beaumont in America*, New York: Oxford University Press, 1938, p. 119).” **Such a culture calls for a longer term view than modernism provides.**”

Chapter 4, Good Policies, first paragraph

Changed “the **timeless** view of deciding well” to “the **invariant** view of deciding well” in the first sentence.

Changed “**free people**” to “**us**” in the last sentence.

Chapter 4, Boundless Liberalism, first paragraph

Changed “**timeless** view of **governing** well” to “**invariant** view of **deciding** well” in the first sentence.

Chapter 4, Boundless Liberalism, second paragraph

Changed “**timeless** view of **governing** well” to “**invariant** view of **deciding** well” in the fourth sentence.

Chapter 4, Boundless Liberalism, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “timeless view of governing well” to “invariant view of deciding well” in the third sentence.

Chapter 4, Boundless Liberalism, fourth paragraph

“Further, boundless liberalism differs from both of these competing liberalisms in that it uses the timeless rather than a temporal concept of deciding well to help us find problems to solve. As we saw in the EOQ/RTS example, a temporal concept of deciding well tends to blind us to learning. It also tends to blind us to the problem of embedding mistakes into our networks of knowledge-in-use, which both slows progress and leads to debacles, the sudden and catastrophic release of “frozen” stress.”

was changed to:

“Unlike boundless liberalism, these two bounded forms of liberalism use the temporal concept of excellence in means to help us find problems to solve. As we saw in the EOQ/RTS example, this tends to blind us to learning. It also tends to blind us to the problem of embedding mistakes into our networks of knowledge-in-use, which slows progress and leads to debacles, the sudden and catastrophic release of “frozen” stress.”

Chapter 4, Boundless Liberalism, fourth paragraph

Changed “the temporal concept” to “a temporal concept” in the second sentence.

Appendix B, Introduction, entire section

“Introduction

The case for pursuing the timeless ends of believing well (the Truth), living well (the Good), deciding well (Wisdom), living and working with others well (Justice), and contemplating well (Beauty) rests on the belief that these ends exist. From the timeless view of believing well, we can either pretend to be certain that this belief is true or false, or aspire to be wise by seeking to discover whether this belief is true or false. In aspiring to be wise, we may learn much by considering extreme cases. Here, we consider the religious aspects of living well.”

was deleted.

Appendix B, Farther Reaches of Living Well, title

Changed “Living Well” to “Our Nature.”

Appendix B, Farther Reaches of Our Nature, first paragraph

Changed “unjust, unethical, or unwise stories” to “untrue, unjust, unethical, or unwise stories for helping us choose what to do” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix B, Farther Reaches of Our Nature, third paragraph

Changed “deciding well” to “**pursuing the timeless end of** deciding well” in the first sentence.

Appendix B, Heroic Death, third paragraph

Changed “view of **timeless science**” to “**invariant** view of **deciding well**” in the first sentence.

Appendix B, Heroic Death, last paragraph

Changed “**timeless** view of deciding well” to “**invariant** view of deciding well” in the third sentence.

Appendix B, Deciding Reverently, first paragraph

Changed “**choose what to do**” to “**find problems to solve**” in the first sentence.

Changes in Version 2009.03.18

Preface, third paragraph

“Should we **base science on what we currently know or on what we need to know in order to believe well?**”

was changed to:

“**To wit,** should we **define science as refined beliefs or as a process of refining beliefs?**”

Preface, fourth paragraph

Changed “a process” to “a process **of refining beliefs**” in the first sentence.

Preface, fifth paragraph

Changed “**our search for knowledge**” to “**science**” in the first sentence.

Preface, eleventh paragraph

Changed “based on this belief, **which in turn calls for making a civil leap of faith**” to “based on this belief” in the last sentence.

Preface, twelfth paragraph, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“**Proving** this belief, and the beliefs that support it, **calls for** forming a government based on **this belief**.”

was changed to:

“**We can never be certain of this belief and the belief system that supports it. However, we can aspire to be wise by attempting to disprove** this belief and the belief system that supports it, **which we do by** forming a government based upon it. **Undertaking this civil research program, like undertaking all other research programs, calls for making a leap of faith. We base the decision to make this civil leap of faith upon the ring of truth.**”

Chapter 1, tenth paragraph, second footnote

Deleted “, **chapter 10**” from the book reference.

Chapter 2, *Three Common Mistakes*, last paragraph

Changed “**American** merchants” to “merchants” in the last sentence.

Chapter 3, *Beauty as a Guide to Deciding Well*, last paragraph, last two sentences

“From behind this veil of ignorance, we should want all intelligent beings to pursue the timeless end of **a good life for all living beings. The most beautiful means of pursuing this timeless end is to pursue all of the boundless factors of deciding well.**”

were changed to:

“From behind this veil of ignorance, we should want all intelligent beings to pursue the timeless end of **revering life well. We pursue this timeless end by deciding well.**”

“**In deciding well, we use intellectual tools to help us find problems to solve. We may divide these tools into two groups. The first helps us to choose “good” problems. The second helps us to choose “right” rules for deciding well. When we use these tools to make major decisions, we ought to compare the results of several tools. The less the tools that we use have in common, the less is the risk that the results contain a common error. Hence, we ought to use both tools that aim at “good” problems and tools that aim at “right” rules for deciding well. We also ought to use only those tools that help us pursue the highest ends that we can imagine, only those tools that help us pursue timeless ends. When all the tools we use to find problems to solve yield the same solution, we have found a beautiful problem to solve.**”

“⁴ **For more on revering life well, see Appendix B.**”

Chapter 3, *The Elephant in the Room*, last paragraph, footnote

Deleted the footnote:“⁴ **For more on this subject, see Appendix B.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, Refining Deciding Well, second paragraph

“The timeless concept of science described above calls for us to refine the set of stories that we use to predict what will happen by how well they help us predict what will happen. We may begin to refine these stories by weeding out all stories that are not clear, concise, and logical. What will remain is a set of precise stories that we use to predict what will happen. We may then refine this set by weeding out stories that fail to meet our (evolving) standards for helping us predict what will happen. What will remain is a set of refined stories that we use to predict what will happen.”

was changed to:

“The timeless concept of science described above calls for us to refine the set of stories that we use to predict what will happen **in systems of intelligent agents** by how well they help us predict what will happen **in these systems**. We may begin to refine these stories by weeding out all stories that are not clear, concise, and logical. What will remain is a set of precise stories that we use to predict what will happen **in systems of intelligent agents**. We may then refine this set by weeding out stories that fail to meet our (evolving) standards for helping us predict what will happen. What will remain is a set of refined stories that we use to predict what will happen **in systems of intelligent agents**.”

Chapter 3, Refining Deciding Well, third paragraph

“The timeless concept of science also calls for us to refine the set of stories that we use to explain what happens by how well they help us find temporal problems to solve. We may begin by weeding out all stories that are not clear, concise, and logical. What should remain is a set of precise stories that we use to explain what happens. We may then refine this set by weeding out stories that fail to meet our (evolving) standards for helping us find problems to solve. What should remain is a set of refined stories that we use to find problems to solve. The rub is that we do not know exactly what it is that we ought to seek, which is to say that we do not know how to define ‘wealth’ exactly.”

was changed to:

“The timeless concept of science also calls for us to refine the set of stories that we use to explain what happens **in the systems we build to live and work together** by how well they help us find temporal problems to solve. We may begin by weeding out all stories that are not clear, concise, and logical. What should remain is a set of precise stories that we use to explain what happens in the systems **we build to live and work together**. We may then refine this set by weeding out stories that fail to meet our (evolving) standards for helping us find problems to solve. What should remain is a set of refined stories that we use to find problems to solve. The rub is that we do not know exactly what it is that we ought to seek, which is to say that we do not know how to define ‘wealth’ exactly.”

Chapter 3, Refining Deciding Well, fourth paragraph, last two sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The classic example is the mercantile **system, which defines** wealth as precious metal coins and bullion. **The modern economic concept of wealth has proven to be much better than this concept for finding problems to solve.**”

was changed to:

“The classic example is the mercantilist **concept of** wealth as precious metal coins and bullion, **which tended to blind policymakers to Adam Smith’s virtuous circle of the division of labor and the expansion of market size. Similarly, the modern concept of wealth as those things that people want and the resources to produce those things that people want tends to blind policymakers to the virtuous circle of good people and good products.**”

Chapter 4, Good Policies, first paragraph

Changed “**us**” back to “**free people**” in the last sentence.

Chapter 4, Boundless Liberalism, second paragraph, last sentence

“Social justice is **nothing** more than tribal justice in modern garb.”

was changed to:

“Social justice is **little** more than tribal justice in modern garb, **a fact which the recent addition of the adjective ‘sustainable’ confirms.**”

Appendix B, Experiencing the Mysterious, first paragraph

Changed “live **well**” to “live” in the third sentence.

Appendix B, Deciding Reverently, entire section

“**Deciding Reverently**

In pursuing the sacred, which is to say in pursuing the timeless end of deciding well, we use intellectual tools to help us find problems to solve. We may divide these tools into two groups. The first helps us to choose “good” problems. The second helps us to choose “right” rules for deciding well. When we use these tools to make major decisions, we ought to compare the results of more than one tool. The less the tools that we use have in common, the less is the risk that the results contain a common error. Hence, we ought to use both tools that aim at “good” problems and tools that aim at “right” rules for deciding well. We also ought to use only those tools that help us pursue the highest justice we can imagine, only those tools that help us revere life well.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“A Common Timeless End

From the invariant view of deciding well, materialists and dualists can find a common timeless end in the *civil* timeless end of revering life well. We can never be certain that we ought to pursue this civil end. However, we can aspire to be wise by disproving that we ought to pursue it, which we do by pursuing it. Undertaking this research program calls for making a civil leap of faith. We base the decision to undertake this civil research program on the ring of Truth.”

Changes in Version 2009.03.24

Preface, third and fourth paragraphs

“My desire for a science of deciding well raises the issue of the definition of science. To wit, should we define science as refined beliefs or as a process of refining beliefs?

“The belief that we should define science as a process of refining beliefs conflicts with the modern belief that science concerns *definite* knowledge. Analytic philosopher Bertrand Russell clearly stated this modern belief in the introduction to his popular history of Western philosophy: ”

were changed to:

“My desire for a science of deciding well conflicts with the modern belief that science concerns *definite* knowledge. Analytic philosopher Bertrand Russell clearly stated this modern belief in the introduction to his popular history of Western philosophy: ”

Preface, sixth paragraph

Deleted the third sentence: “I call this approach *boundless pragmatism*.”

Preface, ninth paragraph

Changed “universal, unvarying concept” to “universal, unvarying concept of deciding well” in the last sentence.

Preface, tenth paragraph, last sentence

“Finally, deciding well, so conceived, is *self-refining* in that the process of deciding well and our understanding of the process of deciding well co-evolve.”

was changed to:

“Finally, deciding well, so conceived, is *self-refining*. To decide well is to decide ever more wisely.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, eleventh paragraph

Changed “I call” to “we may call” in the second sentence (2 occurrences).

Preface, last paragraph

“This insight into how intelligent beings decide well has profound implications for **what** modern economists **call macroeconomics**. Deciding well, so conceived, creates economic stress, the need to reallocate resources. If we decided perfectly, this stress would flow smoothly through the economic system until the system fully adjusts to the change that created it. Regrettably, we do not decide perfectly. Deciding **im**perfectly creates or transfers wasteful stress, which in turn creates turbulence in the flow of economic resources. If this were all deciding imperfectly did, the amount of turbulence would tend toward a “natural” level. However, deciding imperfectly also embeds mistakes into, or reinforces mistakes in, our networks of knowledge-in-use. Over time, deciding well releases the stress “frozen” in these networks. These unpredictable releases of stress tend to disrupt the “natural” level of turbulence. **R**esponding to these periods of “unnatural” turbulence with policies that lower turbulence by lowering the quality of decision-making embeds more mistakes into our networks of knowledge-in-use, thereby creating the conditions for even greater releases of stress in the future. Hence, the choice we face is not between good times and bad times; but rather between cycles of good times and bad times, and longer cycles of good times and major catastrophes. Seeking to extend good times by lowering the quality of decisions is as shortsighted as seeking to prevent all forest fires.”

was changed to:

“This insight into how intelligent beings decide well has profound implications for modern economics. Deciding well, so conceived, creates economic stress, the need to reallocate resources. If we decided perfectly, this stress would flow smoothly through the economic system until the system fully adjusts to the change that created it. Regrettably, we do not decide perfectly. Deciding **less than** perfectly creates or transfers wasteful stress, which in turn creates turbulence in the flow of economic resources. If this were all deciding imperfectly did, the amount of turbulence would tend toward a “natural” level. However, deciding imperfectly also embeds **new** mistakes into, or reinforces **existing** mistakes in, our networks of knowledge-in-use. Over time, deciding well releases the stress “frozen” in these networks. These unpredictable releases of stress tend to disrupt the “natural” level of turbulence.

“**One conclusion we may draw from this simple analysis is that all financial economic models that assume that turbulence tends towards a “natural” level seriously underestimate the probability of periods of major turbulence. This is consistent with the criticisms of these models by Benoit Mandelbrot and Nassim Taleb.**

“**Another conclusion that we may draw from this simple analysis is that** responding to periods of “unnatural” turbulence with policies that lower turbulence by lowering the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

quality of decision-making embeds mistakes into our networks of knowledge-in-use, thereby creating the conditions for even greater releases of stress in the future. Hence, the choice we face is not between good times and bad times; but rather between cycles of good times and bad times, and longer cycles of good times and major catastrophes. Seeking to extend good times by lowering the quality of decisions is as shortsighted as seeking to prevent all forest fires.”

Chapter 1, A Holistic View of Deciding Well, last paragraph, second sentence

Inserted the sentence:

“As in physics, considering the dimensions of space and time as an integrated whole provides us with a more coherent view of the world.”

Chapter 1, Two Views of Deciding Well, last paragraph

“From a timeless view of deciding well, **when we fail** to decide perfectly, we embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use; that is, into our markets, technologies, legal systems, languages, scientific theories, and cultures. The dot-com bubble, household lead paint, the Versailles Treaty, the concept of wealth as precious metal coins and bullion, the Ptolemaic theory of the solar system, and countless forms of conspicuous consumption spring to mind. We muddle through a tangle of past mistakes. When it is practical to do so, we use timeless tools to choose temporal problems to solve and temporal tools to solve these problems. We **also** use timeless tools to help us identify the resources we are likely to need in order to solve unexpected temporal problems.”

was changed to:

“From a timeless view of deciding well, **to decide well is to decide ever more wisely, not** to decide perfectly. **Given our limited knowledge relative to the infinitely large problem we face, we can never avoid making mistakes. When we make mistakes,** we embed **new** mistakes into, or reinforce **existing** mistakes in, our networks of knowledge-in-use; that is, into our markets, technologies, legal systems, languages, scientific theories, and cultures. The dot-com bubble, household lead paint, the Versailles Treaty, the concept of wealth as precious metal coins and bullion, the Ptolemaic theory of the solar system, and countless forms of conspicuous consumption spring to mind. We muddle through a tangle of past mistakes. When it is practical to do so, we use timeless tools to choose temporal problems to solve and temporal tools to solve these problems. We use timeless tools to help us identify the resources we are likely to need in order to solve unexpected temporal problems. **We learn from experience.**”

Chapter 1, The Need for Timeless Views, last paragraph, last sentence

“As in physics, unifying the dimensions of space and time provides us with a more complete and coherent view of the world.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Chapter 1, Temporal versus Timeless Values, six paragraph

Changed “logical but also true” to “**empirically** true but also **logically** true” in the second sentence.

Chapter 3, Refining Deciding Well, first paragraph, last footnote

“¹⁴ To students of Milton Friedman, these two rules will seem familiar. However, communication across paradigms is only partial. **Friedman accepts the modern belief that science concerns results (theories) rather than processes (strategies for learning/research programs). From this temporal view of science, the distinction between positive science (theories that describe what is) and normative science (theories that prescribe what ought to be) makes sense. From the view of timeless science, the distinction between positive science and normative science does not make sense. Strategies for learning/research programs prescribe how we ought to describe the world. Acting on our beliefs about the world changes the world. In the fullness of time, we, as a collective, must deal with the consequences of our actions.**”

was changed to:

“¹⁴ To students of Milton Friedman, these two rules will seem familiar. However, communication across paradigms is only partial. **The distinction between theories that describe what is (positive science) and theories that prescribe what ought to be (normative science) is not the same as the distinction between theories that predict and theories that explain.**”

Chapter 3, Refining Everyday Thinking, tenth and eleventh paragraphs

“**Let us quickly review what underlies this timeless concept of science. The problem of believing well is boundless. We address boundless problems, not solve them. In the words of Dwight Eisenhower, which call to mind the incompleteness theorems of Kurt Gödel, “If a problem cannot be solved, enlarge it.” Enlarging the problem of believing well to the limits of imagination calls for considering what we need to believe well. These things include such boundless factors of deciding well as the Good, the Truth, Wisdom, Justice, and Beauty.**”¹¹

“**In contrast, the modern way of thinking about science as the temporal end of believing well concerns what the producers of knowledge are able to supply under current constraints. As we saw in the EOQ/RTS example, temporal views tend to blind us to timeless ends. Here, the modern view of science tends to blind us to the timeless end of believing well (the Truth), and so to the timeless ends of living well (the Good), deciding well (Wisdom), living and working with others well (Justice), contemplating well (Beauty).**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“The modern way of thinking about science as the temporal end of believing well concerns what the producers of knowledge are able to supply under current constraints. As we saw in the EOQ/RTS example, temporal views tend to blind us to timeless ends. Here, the modern view of science tends to blind us to the timeless end of believing well (the Truth), and so to the timeless ends of living well (the Good), deciding well (Wisdom), living and working with others well (Justice), and contemplating well (Beauty).”

“In contrast, from the invariant view of deciding well, the problem of believing well cannot be solved. In the words of Dwight Eisenhower, which call to mind the incompleteness theorems of Kurt Gödel, “If a problem cannot be solved, enlarge it.” Enlarging the problem of believing well to the limits of imagination calls for considering what we need to believe well, which includes the boundless factors of deciding well (the Good, the Truth, Wisdom, Justice, and Beauty).¹¹”

Chapter 4, *Lower Trade Barriers*, first paragraph, first footnote

“¹⁵ Consider the tax-free status of employee medical insurance benefits in the United States. This supposed benefit effectively takes away employees’ right to buy medical insurance from whomever they please. If people were free to buy medical insurance from any source, many would choose to buy it from sources that would help them to live better. Sources that successfully help their clients to live better would pass the savings on to their clients, thereby attracting more people to their programs. The benefits of free trade go far beyond promoting efficiency in production.”

was deleted.

Chapter 4, *Boundless Liberalism*, entire section

Changed “boundless liberalism” to “timeless liberalism” in all (6 occurrences).

Chapter 4, *Timeless Liberalism*, first paragraph

Changed “that ensure the right and the responsibility to decide well” to “based on the sovereign right to decide well, which is to say to decide ever more wisely” in the last sentence.

Chapter 4, *Timeless Liberalism*, fourth paragraph

Changed “bounded forms” to “temporal forms” in the first sentence.

Changed “the sudden and catastrophic release” to “the sudden release of large amounts” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix A, *Folding in Processes*, first paragraph

Changed “when **and** where” to “when **or** where” in the second and last sentences.

Appendix A, *Folding in Processes*, fifth paragraph

Changed “**can** fold” to “fold” in the first sentence.

Merged paragraph with preceding paragraph.

Appendix A, *Folding in Processes*, eighth paragraph

Changed “cost per unit” to “costs per unit, **including decision-related costs per unit.**” in the second sentence.

Appendix A, *Folding in Processes*, last paragraph, last two sentences

“As we shall see, the Toyota system is flexible like a job shop in that it has many flexible links, and inflexible like continuous production in that these links contain **few** decision alternatives. **These alternatives** concern how much WIP each link contains.”

were changed to:

“As we shall see, the Toyota system is flexible like a job shop in that it has many flexible links, and inflexible like continuous production in that these links contain **only** decision alternatives **that** concern how much WIP each link contains.”

Appendix A, *Machine Tools*, third paragraph

Changed “**wheel bolts**” to “**a particular type of part**” in the first sentence.

Changed “six” to “six **machines**” in the fourth sentence.

Changes in Version 2009.03.26

Chapter 1, *Temporal versus Timeless Values*, last paragraph

Changed “**this holistic** view of deciding well” to “**the timeless** view of deciding well **that aims the boundless factors of deciding well**” in the last sentence.

Chapter 3, *Beauty as a Guide to Deciding Well*, last paragraph

Changed “**solution**” to “**result**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *Promote Decision Science*, last paragraph, last two sentences

“Until we choose our governments by how well they govern, we **will not get governments that foster knowledge useful in deciding well.** We will not get governments that foster the better angels of our natures.”

were changed to:

“Until we choose our governments by how well they govern, we will not get governments that foster the better angels of our natures.”

Chapter 4, *Timeless Liberalism*, second paragraph, last sentence

“Social justice is little more than tribal justice in modern garb, **a fact which the recent addition of the adjective ‘sustainable’ confirms.**”

was changed to:

“**As John Rawl’s veil of ignorance technique reveals, revering life well calls for more than social justice, or even sustainable social justice. It calls for the timeless end of living and working with others well (Justice).** Social justice is little more than tribal justice **in modern garb.**”

Chapter 4, *Summary and Conclusion*, first paragraph, end

Added the sentences:

“**In general, these tools help us find better problems to solve. We shall not grow wiser before we learn that much that we have done was very foolish.**”

Appendix B, *A Common Timeless End*, first paragraph

Changed “on the ring of Truth” to “**upon** the ring of Truth” in the last sentence

Changes in Version 2009.03.31

Acknowledgments, fifth paragraph

Changed “learning **from others and from experience**” to “learning” in the fourth sentence.

Preface, sixth paragraph

Deleted “[**modern**]” from the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, seventh paragraph

“The **essence of modernism is the process of** breaking **an** unwieldy whole into parts in order to solve problems better. We see this process in science (reductionism), philosophy (analysis), and economics (the division of labor). A major danger of using this process is forgetting to consider the whole, especially how we may fit into the whole. **Despite the fact that** knowledge of **the** whole, like definite knowledge of the transcendental number *pi*, will remain forever beyond our grasp, we must not pass over it in silence. When we expand the scope of the problems we face to the limits of imagination, a structure of timeless values emerges. **Knowledge of this structure** can help us find better problems to solve. **It can also help us better prepare for unexpected problems.**”

was changed to:

“The **spirit of our age concerns** breaking unwieldy wholes into parts in order to solve problems better. We can see this process in **modern** science (reductionism), philosophy (analysis), and economics (the division of labor). A major disadvantage of using this process is forgetting to consider the **infinitely greater** whole. **Although definite** knowledge of **this greater** whole, like definite knowledge of the transcendental number *pi*, will remain forever beyond our grasp, we must not pass over it in silence. When we expand the scope of the problems we face to the limits of imagination, a structure of timeless values emerges. **Understanding the process by which we progress towards these timeless ends** can **provide us with tools for** helping us find better problems to solve.”

Preface, eighth paragraph

Changed “ **and to help them better prepare** for unexpected problems” to “ **, including how better to prepare** for unexpected problems” first sentence.

Changed “governing well” to “governing **ourselves** well” in the last sentence.

Preface, ninth paragraph, first three sentences

“From an academic view, **this work puts forth** a model of cultural evolution **that plays the role in the *intelligent life sciences* that natural selection plays in the biological sciences. It is the idea that pulls the field together into a coherent whole. The basic argument is remarkably simple:**”

were changed to:

“From an academic view, **I propose** a **simple** model of **deciding well, which serves as the core of a theory** of cultural evolution:”

Put the remainder of the paragraph in a block quote.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, tenth paragraph, last sentence

“We base the decision to make this civil leap of faith upon the ring of truth.”

was changed to:

“Over time, we learn that we ought to base such leaps of faith upon the ring of truth.”

Preface, eleventh and twelfth paragraphs

“To the extent that we decide well, so conceived, there is a direction to cultural evolution. Further, to the extent that we do not decide well, so conceived, we embed new mistakes into, or reinforce existing mistakes in, our networks of knowledge-in-use. Unrelieved, the piling up of these mistakes leads to major catastrophes, the sudden release of large amounts of stress.

“This insight into how intelligent beings decide well has profound implications for how we think about economics. Deciding well, so conceived, creates economic stress, the need to reallocate resources. If we decided perfectly, this stress would flow smoothly through the economic system until the system fully adjusts to the change that created it. Regrettably, we do not decide perfectly. Deciding less than perfectly creates or transfers wasteful stress, which in turn creates turbulence in the flow of economic resources. If this were all deciding imperfectly did, the amount of turbulence would tend toward a “natural” level. However, deciding imperfectly also embeds new mistakes into, or reinforces existing mistakes in, our networks of knowledge-in-use. Over time, deciding well releases the stress “frozen” in these networks. These unpredictable releases of stress tend to disrupt the “natural” level of turbulence.”

were changed to:

“To the extent that we decide well, so conceived, there is a direction to cultural evolution. Further, to the extent that we do not decide well, so conceived, we embed new mistakes into, or reinforce existing mistakes in, our networks of knowledge-in-use. This insight into how intelligent beings decide well has profound implications for how we think about economics:

“Deciding well, so conceived, creates economic stress, the need to reallocate resources. If we decided perfectly, this stress would flow smoothly through the economic system until the system fully adjusts to the change that created it. Regrettably, we do not decide perfectly. Deciding less than perfectly creates or transfers wasteful stress, which in turn creates turbulence in the flow of economic resources. As turbulence rises, we spend more time responding to it and less time deciding well in ways that create it. Conversely, as turbulence falls, we spend less time responding to it and more time deciding well in ways that create it. If deciding imperfectly only created turbulence, the amount of turbulence would tend toward a “natural” level. However, deciding imperfectly also embeds new mistakes into, or reinforces existing mistakes in, our networks of knowledge-in-use. Over

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

time, deciding well releases the stress “frozen” in these networks. These releases of “frozen” stress tend to disrupt the “natural” level of turbulence.”

Preface, third to last paragraph

Changed “all financial economic models” to “economic models” and “seriously underestimate the probability of periods of major turbulence” to “severely underestimate the probability of great turbulence” in the second sentence.

Preface, second to last paragraph

Changed “draw from this simple analysis” to “draw” and “unnatural” turbulence” to “great turbulence” in the first sentence.

Changed “major catastrophes” to “wretched times” in the second sentence.

Chapter 1, A Holistic Approach to Deciding Well, third paragraph, first sentence

“Another way of thinking about how we cope with these constraints is to think about how we frame the world, which is to say how we reduce what we sense to concepts.”

was changed to:

“Another way of thinking about how we cope with these constraints is to classify the knowledge we need to decide well by how it helps us to decide well. For example, we may classify this knowledge into explanations and predictions. Explanations help us find and refine possible courses of action. Predictions help us evaluate possible courses of action. As we shall see, distinguishing between these two types of knowledge is crucial to deciding well.

“Yet another way of thinking about how we cope with these constraints is to think about how we frame the world, which is to say how we reduce what we sense to concepts.”

Chapter 1, A Holistic Approach to Deciding Well, fifth paragraph

Changed “addressing it” to “making it part of an even larger problem” in the last sentence.

Chapter 1, A Holistic View of Deciding Well, last paragraph

“We can address the infinitely large problem of choosing frames by expanding the problem of deciding well to infinity. As in physics, considering the dimensions of space and time as an integrated whole provides us with a more coherent view of the world. Using Sowell’s constrained versus unconstrained vision frame, this holistic approach to deciding well calls both for a constrained view, which we use to solve given problems, and for as unconstrained a view as we can imagine, which we use to find problems to

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

solve. Using Lakoff's metaphors frame, governments are like research managers who help us explore the timeless end of living well. Understanding this holistic approach to deciding well calls for us to understand the timeless concepts of deciding well, living well, contemplating well, believing well, and governing ourselves well. We begin with the timeless concept of deciding well.”

was deleted.

Chapter 1, The Need for Timeless Views, end

Added the paragraph:

“From the view of modern science, the idea of seeing deeply into the future is nonsense. It ignores uncertainty. To wit, how can we know what we don't know, when we don't know what we don't know? In contrast, from the timeless view put forth in this work, we can know something about what we need to decide well infinitely far into the future. This difference of opinion raises the issue of values.”

Chapter 1, Temporal versus Timeless Values, first paragraph

Italicized “*temporal*” in the first sentence and “*timeless*” in the second sentence.

Chapter 1, Temporal versus Timeless Values, second paragraph

Changed “*living and working with others*” to “*governing ourselves*” in the second sentence.

Chapter 1, Temporal versus Timeless Values, third paragraph

Changed “**F**rom” to “**I**n contrast, **f**rom” in the last sentence.

Chapter 1, Temporal versus Timeless Values, sixth paragraph

Changed “*not only empirically true but also logically true by definition*” to “true by definition” in the fourth sentence.

Changed “*sun enters a long period of low sunspot activity that lowers the average temperature*” to “*climate cools*” in the fifth sentence.

Chapter 1, Temporal versus Timeless Values, seventh paragraph

Changed “From **the** modern view” to “From **a** modern, **t**emporal view” in the first sentence.

Chapter 1, Temporal versus Timeless Values, tenth and eleventh paragraphs

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The debate over whether it is better to take a temporal or a timeless approach to believing well has divided Western philosophers since the time of Plato and Aristotle. Plato would have us know the Truth by breaking free from the everyday concepts that cause us to see only the shadows of things, fighting our way out of the cave of ignorance, and stepping into the light of the Good. Once we are used to the light of the Good, we will be able to see the ideal forms — the unchanging elements and relations — that underlie all sensations of reality. In other words, Plato would have us break the stream of words that binds our minds to our personal mental worlds in order to embrace a stream of words that binds our minds to a universal mental world. This is the process of linking or re-linking to something infinitely greater than ourselves.¹⁴ In sharp contrast, Aristotle split the study of nature and motion from the study of first causes and principles. In modern terms, he split science from metaphysics. This approach to believing well is temporal, not timeless.¹⁵”

“The timeless approach to believing well is to pursue the timeless end of knowing the unchanging elements and relations that underlie all sensations of reality. As we shall see, we pursue this timeless end by pursuing the timeless end of deciding well (Wisdom).”

“¹⁴ Again, this concept of linking or re-linking is agnostic. It includes both an atheistic pursuit of the Truth and Albert Einstein’s dream of understanding God’s thoughts.”

“¹⁵ In Kuhnian terms, this approach is normal science, not endless cycles of normal and revolutionary science. See Kuhn, Thomas, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962).”

were deleted.

Chapter 1, Temporal versus Timeless Values, new tenth paragraph

Inserted the sentence:

“From the timeless view of believing well put forth in this work, the timeless end of believing well emerges from the endless pursuit of deciding well.”

Changed “The first step in setting this course” to “Over time, we learn” in the new second sentence.

Chapter 1, Temporal versus Timeless Values, new eleventh paragraph

Changed “The next step is to recognize” to “Over time, we learn” in the first sentence.

Chapter 1, Temporal versus Timeless Values, new twelfth paragraph

Changed “The last step is to recognize” to “Over time, we learn” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “The” to “We learn that the” in the third sentence.

Chapter 1, Temporal versus Timeless Values, last two paragraphs

“Over time, we learn that Justice is a boundless factor of deciding well. We need the help of others to pursue the timeless end of deciding well. We can never live and work too well with others. **We also learn that the inexhaustibility of knowledge makes it as easy, if not easier, to cooperate across time as to cooperate across space.** The ancient Chinese provide us a simple model for cooperating across **time**: “The debts that we owe to our ancestors we pay to our descendants.” Following this model, we can cooperate in deciding well across **time** and **space** with the moral rule: “The debts we cannot pay to whom they are due we pay to others by deciding well.” This includes the debts that we owe to those who provided us with the knowledge that we use freely.

“In summary, from a temporal view of deciding well, people base their values on what they currently know. The source of this knowledge lies beyond the temporal process of deciding well. In contrast, from the timeless view of deciding well **that aims at the boundless factors of deciding well**, which we may call the invariant view of deciding well, our values emerge from the endless process of deciding well. **By deciding well, we learn to decide ever more wisely. We learn to distinguish between bounded and boundless factors of deciding well; we learn that the pursuits of the boundless factors of deciding well are intertwined; and** we learn that we ought to pursue the timeless ends of living well (the Good), believing well (the Truth), **deciding well (Wisdom), and living and working with others well (Justice).** The difference between a temporal view and the invariant view of deciding well **is** the difference between thinking in terms of results and thinking in terms of **endless** processes. From a temporal view **of deciding well**, we can never be certain that we ought to pursue the timeless ends **of the Good, the Truth, Wisdom, and Justice.** **In contrast, from the invariant view of deciding well**, we can either pretend to be certain that we ought *not* to pursue **these timeless ends**, or aspire to be wise by seeking to discover whether we ought *not* to pursue **them**, which we do by pursuing **them.**”

were changed to:

“Over time, we learn to that **the timeless end of governing ourselves well (Justice)** is a boundless factor of deciding well. **Governing ourselves well is a matter of living and working with others well.** We need the help of others to pursue the timeless end of deciding well. We can never live and work too well with others, **including people separated from us by great distances or long periods of time. In the modern age, the idea of cooperating with people separated by great distances is common. However, the idea of cooperating with people separated by long periods is not.** The ancient Chinese provide us a simple model for cooperating across **countless generations of people**: “The debts that we owe to our ancestors we pay to our descendants.” Following this model, we can cooperate in deciding well across **great distances** and **long periods of time** with the moral rule: “The debts we cannot pay to whom they are due we pay to others by

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

deciding well.” This includes the debts that we owe to those who provided us with the knowledge that we use freely.

“In summary, from a temporal view of deciding well, people base their values on what they currently know. The source of this knowledge lies beyond the temporal process of deciding well. In contrast, from the timeless view of deciding well **put forth in this work**, which we may **reasonably** call the invariant view of deciding well, our values emerge from the endless process of deciding well. Over time, we learn that we ought to pursue the **timeless end of deciding well (Wisdom)**, which calls for pursuing the timeless ends of living well (the Good), believing well (the Truth), and **governing ourselves** well (Justice).¹⁵”

“¹⁵ The difference between a temporal view and the invariant view of deciding well **concerns** the difference between thinking in terms of results and thinking in terms of processes. From a temporal view, we can never be certain that we ought to pursue the timeless end of **deciding well (Wisdom)**. From the invariant view, we can either pretend to be certain that we ought *not* to pursue **Wisdom**, or aspire to be wise by seeking to discover whether we ought *not* to pursue **Wisdom**, which we do by pursuing **Wisdom**. **Over time, we learn to aspire to be wise.**”

Chapter 1, Overview, first paragraph

Changed “governing well” to “governing **ourselves** well” in the last sentence.

Chapter 1, Overview, second paragraph

Changed “production, **and profit**” to “**and** production” in the last sentence.

Chapter 1, Overview, last paragraph

Changed “governing well” to “governing **ourselves** well” in the first sentence.

Chapter 2, Timeless Tools for Living Well, second paragraph

Changed “simply:” to “simply **to**” in the last sentence.

Chapter 2, Timeless Tools for Living Well, last paragraph

“Modern economics provides us with **the** temporal concepts **we need to help us solve temporal problems**. The balance of this section offers timeless alternatives to the modern economic concepts of wealth, consumption, trade, taxation, production, **and profit**.”

was changed to:

“Modern economics provides us with temporal concepts, **which we may use to become more efficient**. The balance of this section offers timeless alternatives to the modern

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

economic concepts of wealth, consumption, trade, taxation, and production, which we may use to become more effective.”

Chapter 2, *Virtuous Circles*, entire section

Merged section with the preceding section.

Chapter 2, *Wisdom*, entire section

Merged section with the preceding section.

Chapter 2, *Pleasure and Pain*, new tenth paragraph

Changed “From the invariant view of deciding well, living well” to “Pursuing the virtuous circle of pleasure and joy” in the first sentence.

Chapter 2, *Pleasure and Pain*, new eleventh paragraph, last three sentences

“Pleasure and joy can mask the pain of unsatisfied foolish activities. Pleasure and joy also can mask the pain of unsatisfied needs that we are able to satisfy. They can lead us to construct fools’ paradises.”

was changed to:

“Pleasure and joy can mask not only the pain of unsatisfied needs that we are not able to satisfy, but also those that we are able to satisfy. Rather than helping us satisfy our needs well, they can lead us to construct fools’ paradises.”

Chapter 2, *Tools for Pursuing Wisdom*, new tenth paragraph

Changed “great danger” to “danger” in the first and second sentences (2 occurrences).

Chapter 2, *Human Capital, Work, and Leisure*, entire section

“Human Capital, Work, and Leisure

From the temporal view of modern economics, human capital is knowledge that raises our income; work is an *unpleasant* activity that others pay people to perform; and leisure is time spent not working. People aim to *please* themselves by consuming economic goods during their leisure time. People work in order to consume. Living well calls for us to *balance* work and leisure.

“From the invariant view of deciding well, human capital is knowledge that helps us to satisfy our needs; work is *any* activity that others pay us to perform; and leisure is time spent satisfying our needs. We aim to *enjoy* ourselves by pursuing the virtuous circle of pleasure and joy. We work in order to become whole. Living well calls for us to *combine* work and leisure. In religious terms, finding our true calling is a blessing.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was merged into the preceding section before the last paragraph and changed to:

“As we saw in the EOQ/RTS example, using temporal tools for the timeless task of finding problems to solve tends to blind us to the best problem to solve. Perhaps the greatest danger of this comes from using modern economic terms to guide our actions. Consider the concepts of human capital, work, and leisure. From the temporal view of modern economics, human capital is knowledge that raises our income; work is an *unpleasant* activity that others pay people to perform; and leisure is time spent not working. People aim to *please* themselves by consuming economic goods during their leisure time. People work in order to consume. Living well calls for us to *balance* work and leisure. In contrast, from the invariant view of deciding well, human capital is knowledge that helps us to satisfy our needs; work is *any* activity that others pay us to perform; and leisure is time spent satisfying our needs. We aim to *enjoy* ourselves by pursuing the virtuous circle of pleasure and joy. We work in order to become whole. Living well calls for us to *combine* work and leisure. In religious terms, finding our true calling is a blessing. Here again, acting rationally is not the same as acting wisely.”

Chapter 2, Timeless Profit, entire section

“Timeless Profit

In general, profit is the value of acting well. From the temporal view of modern economics, profit is the return on an action or a period of action.⁶ From the invariant view of deciding well, profit is the expected return on an endless series of decisions. When we try to measure profit, we must choose whether or not to consider what we learn. Given the inexhaustibility of knowledge, we can never be certain of the value of what we have learned or expect to learn. We can either pretend to be certain by ignoring what we learn or aspire to be wise by including it.”

⁶ Note that actual returns include the return on luck. Paying \$10 for a lottery ticket that has a certain expected value of \$100 is wise regardless of the outcome. Conversely, paying \$100 for a lottery ticket that has a certain expected value of \$10 is foolish regardless of the outcome. To attribute actual profits solely to good decision-making or actual losses solely to poor decision-making is foolish.”

was deleted.

Chapter 3, Pursuing the Ring of Truth, last paragraph

Changed “self-similarity” to “universal invariance” in the last sentence.

Chapter 3, Refining Everyday Thinking, seventh paragraph

Changed “experience of others” to “experiences of others” in the fifth sentence.

Chapter 3, Refining Everyday Thinking, seventh paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**Tulips are**” to “**Gold is**” in the third sentence.

Changed “**tulips are**” to “**gold is**” in the last sentence.

Changed “**tulips**” to “**gold**” in the fourth and fifth sentence (3 occurrences).

Chapter 3, Refining Everyday Thinking, ninth paragraph, first footnote, last sentence

“**By taking a longer view, people who care more about living well than about understanding the world as it currently is shifted Kuhn’s paradigm paradigm.**”

was changed to:

“**Kuhn cared about believing well per se. In contrast, the people who shifted Kuhn’s paradigm cared about believing well in order to decide well. They took the larger view.**”

Chapter 3, Refining Everyday Thinking, tenth paragraph

Changed “**living and working with others well**” to “**governing ourselves well**” in the last sentence.

Chapter 3, Refining Everyday Thinking, seventh paragraph

“**In contrast, from the invariant view of deciding well, the problem of believing well cannot be solved. In the words of Dwight Eisenhower, which call to mind the incompleteness theorems of Kurt Gödel, “If a problem cannot be solved, enlarge it.” Enlarging the problem of believing well to the limits of imagination calls for considering what we need to believe well, which includes the boundless factors of deciding well (the Good, the Truth, Wisdom, Justice, and Beauty).**”

was returned to a footnote.

Chapter 3, Refining Deciding Well, first paragraph, second footnote, end

Added the sentences:

“**From the invariant view of deciding well, we use theories that explain to describe the world as it is in the process of becoming. Hidden in these theories is a descriptive statement of a prescriptive program, which is that we are programmed to pursue the timeless end of living well (the Good).**”

Chapter 3, Refining Deciding Well, second paragraph

Changed “**will remain**” to “**remains**” in the third and last sentences (2 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, Refining Deciding Well, third paragraph

Changed “**should** remain” to “remains” in the third sentences.

Chapter 3, *A Crude Look at the Whole*, second paragraph, second footnote

Changed “**A** small rise” to “**For example, a** small rise” in the last sentences.

Chapter 4, title

Changed “Governing Well” to “Governing **Ourselves** Well.”

Chapter 4, Sovereignty, first paragraph, first sentence

“In this section, we apply the invariant concept of deciding well to the timeless end of governing well, which is to say to the endless pursuit of Justice.”

was made into a paragraph and changed to:

“In this section, we apply the invariant concept of deciding well to the timeless end of governing **ourselves** well, which is to say to the endless pursuit of Justice.”

Chapter 4, Sovereignty, new second paragraph

Changed “governing well” to “governing **ourselves** well” in the first sentence.

Chapter 4, *The Explicit Experiment*, last paragraph

Changed “governing well” to “governing **ourselves** well” in the first sentence.

Chapter 4, *A Sovereign Story of Timeless Science*, last paragraph, first footnote

Changed “**modernism**” to “**the spirit of our modern age**” in the first sentence.

Added the sentence: “**We can see this in .**”

Chapter 4, *A Sovereign Story of Timeless Science*, last paragraph, last footnote, last sentence

“**Such a culture calls for a longer term view than modernism provides.**”

was changed to:

“**The spirit of our age tends to undermine such cultures. We see this tendency in modern macroeconomics, which ignores how actions meant to deal with the current storm create the conditions for worse storms in the future. John Maynard Keynes, the creator of**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

modern macroeconomics, neatly sums up the prevailing attitude: “In the long run we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is past the ocean is flat again. (Keynes, John Maynard, *A Tract on Monetary Reform*, London: Macmillan, 1924, chapter 3).”

Chapter 4, Good Policies, first paragraph

Changed “governing well is a matter of **helping all of us to decide**” to “governing **ourselves** well is a matter of **deciding**” in the first sentence.

Changed “**the presence or absence of** the freedom to decide” to “the freedom to decide” in the second sentence.

Chapter 4, *Control the Money Supply Passively*, entire section

Control the Money Supply Passively

The best monetary policy is the one that best helps us to decide well. Central bankers face two major choices. They must choose whether to control the supply or the price of money. They must also choose whether to act with or without warning. Of the four policies created by these two choices, the one that is least harmful to deciding well is to control the money supply by means of actions declared far in advance. Central bankers should not bury the problems that disrupt the smooth flow of resources. They should not hide these problems from the people best able to solve them.¹⁶

“Recessions, like forest fires that burn only underbrush, are beneficial. They release embedded mistakes without destroying the fabric of civilization, the interwoven networks of knowledge that bind us together. The choice we face is not between good times and bad times. It is rather between cycles of good times and bad times, and longer cycles of good times and **major catastrophes**. Seeking to prolong good times by lowering the quality of decisions is as shortsighted as seeking to prevent all forest fires.”

“¹⁶ John Maynard Keynes warns us of the great danger in the power to expand the money supply, “There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency. The process engages all the hidden forces of economic law on the side of destruction, and does it in a manner which not one man in a million is able to diagnose (Keynes, John Maynard, *The Economic Consequences of the Peace*, London: Macmillan and Co., Limited, 1919, reprinted in The World War I Document Archive, *Post 1918*, chapter 6, <<http://www.gwpda.org/1918p/keynespeace.htm>> 12 February 2009).”

was changed to:

Promote Deciding Well, not Stability

Recessions, like forest fires that burn only underbrush, are beneficial. They release embedded mistakes without destroying the fabric of civilization, the interwoven networks of knowledge that bind us together. The choice we face is not between good

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

times and bad times. It is rather between cycles of good times and bad times, and longer cycles of good times and **wretched times**. Seeking to prolong good times by lowering the quality of decisions is as shortsighted as seeking to prevent all forest fires.

“For example, the best monetary policy is the one that best helps us to decide well. If a government has chosen a central banking system, central bankers should promote deciding well, not macroeconomic stability. Central bankers face two major choices. They must choose whether to control the supply or the price of money. They must also choose whether to act with or without warning. Of the four policies created by these two choices, the one that is least harmful to deciding well is to control the money supply by means of actions declared far in advance. Central bankers should not bury the problems that disrupt the smooth flow of resources. They should not hide these problems from the people best able to solve them.”

Chapter 4, *Promote Decision Science*, first paragraph

Changed “governing well” to “governing **ourselves** well” in the first sentence.

Chapter 4, *Promote Decision Science*, first paragraph

Changed “governing well is a matter of **helping all of us to decide**” to “governing **ourselves** well is a matter of **deciding**” in the first sentence.

Deleted the last sentence: “**An important part of deciding well is choosing governments that govern well. Until we choose our governments by how well they govern, we will not get governments that foster the better angels of our natures.**”

Chapter 4, *Boundless Liberalism*, title

Changed “**Boundless** Liberalism” to “**Timeless** Liberalism.”

Chapter 4, *Timeless Liberalism*, first paragraph

Changed “deciding well” to “deciding well, **so conceived**,” and “governing well” to “governing **ourselves** well” in the last sentence.

Chapter 4, *Timeless Liberalism*, second paragraph

“Timeless liberalism differs markedly from modern liberalism. **Modernism reduces human beings to social animals. This leads modern liberals to seek social justice rather than Justice.** From the **invariant** view of deciding well, we are intelligent beings pursuing happiness ever more wisely, not social animals pursuing happiness justly within what we currently believe is our society. As John Rawl’s veil of ignorance technique reveals, **revering life well calls for more than social justice, or even sustainable social justice. It calls for the timeless end of governing ourselves well (Justice).** Social justice is little more than tribal justice in modern garb.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“Timeless liberalism differs markedly from modern liberalism. From the modern liberal view, we are social animals who ought to pursue social justice. From the timeless liberal view, we are intelligent beings who ought to pursue the timeless end of governing ourselves well (Justice). As John Rawls’ veil of ignorance technique reveals, social justice, or even sustainable social justice, is not Justice. Justice calls for us to pursue happiness ever more justly, hence ever more wisely, ever more truly, and ever more beautifully. Social justice is little more than tribal justice in modern garb.”

Chapter 4, Summary and Conclusion, first paragraph

“The essence of modernism is breaking the whole into parts in order to do something better. The major disadvantage of this is forgetting to consider the whole, especially how we fit into the whole. Despite the fact that this knowledge, like definite knowledge of the transcendental number π , will remain forever beyond our grasp, we must not pass over it in silence. When we expand the scope of the problems we face to the limits of imagination, a structure of timeless values emerges. Understanding the process by which we progress towards these timeless ends can provide us with tools for helping us progress towards these ends. We may use these tools to help us find problems to solve, prepare for unexpected problems, cooperate with others of different personal faiths, and know when we are acting as animals filling a role in society rather than as intelligent beings pursuing happiness ever more wisely. In general, these tools help us find better problems to solve. We shall not grow wiser before we learn that much that we have done was very foolish.”

to:

“The intellectual spirit of our age concerns breaking unwieldy wholes into parts in order to solve problems better. A major disadvantage of this process is forgetting to consider the greater whole, especially how we fit into the greater whole. Although definite knowledge of the greater whole will remain forever beyond our grasp, we must not pass over it in silence. When we expand the scope of the problems we face to the limits of imagination, a structure of timeless values emerges. Understanding the process by which we progress towards these timeless ends can provide us with tools for helping us find better problems to solve. We shall not grow wiser before we learn that much that we have done was very foolish.”

Appendix B, Schweitzer's Universal Spiritual Need, fourth paragraph

Changed “fascism” to “national socialism, international socialism” in the fourth sentence.

Appendix B, Experiencing the Mysterious, first paragraph, second sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“To follow the path that leads us ever closer to the Truth, the Good, Wisdom, Justice, and Beauty, we need to distinguish between those mental creations that are temporal and those that are timeless, never forgetting that what is truly timeless will always remain beyond our grasp.”

was deleted.

Appendix B, Experiencing the Mysterious, second paragraph, first two sentences

“Many dualistic religions claim that we need to experience mystical oneness during life in order to reach the ultimate end of eternal mystical oneness with the infinite Being after life, which we may call Bliss. From this view, a life lived well must include the temporal experience of mystical oneness.”

were changed to:

“Many dualistic religions claim that we need to experience mystical oneness during life in order to reach the ultimate end of Bliss, eternal mystical oneness with the infinite Being.”

Appendix B, Einstein's Twin Warnings, last paragraph

Changed “better fruit” to “the better fruit” in the fourth to the last sentence.

Chapter B, A Common Timeless End, last paragraph

Changed “disproving that we ought to pursue it, which we do by pursuing it” to “seeking to disprove that we ought to pursue it, which we do by deciding well” in the third sentence.

Changes in Version 2009.04.18

Preface, fifth paragraph, last two sentences

“I contend that we ought to define science as the endless process of refining our beliefs into an internally consistent whole that helps us to decide well. From this timeless view of science, what Benjamin Franklin called *true science* is a special case.”

were changed to:

“I contend that we ought to define science as the endless process of refining our beliefs into an internally consistent whole that helps us find problems to solve well, including problems that concern refining our beliefs into an internally consistent whole that helps us find problems to solve well. From this recursive view of science, deciding well is an aspect of science; science is an aspect of deciding well; and the timeless end of science concerns explaining what happens, not predicting what will happen. Given this timeless

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

definition of science, islands of simplicity in which it is useful to claim that theories that predict well also explain well are special cases.”

Preface, ninth paragraph

Changed “work” to “essay” in the first and last sentences (2 occurrences).

Chapter 1, A Holistic Approach to Deciding Well, title

Changed title to: “Choosing Frames Well.”

Chapter 1, Choosing Frames Well, first four paragraphs

“Deciding is an activity subject to constraints. These constraints include such things as time, clarity of mind, the quality of intellectual tools, and the scarce resources to do what we would like to do. Over countless generations, we have learned many ways of coping with these constraints. We have also learned many ways of thinking about how to cope with these constraints.

“One way of thinking about how we cope with these constraints is to classify the ways in which we decide into what we may call the three D’s: deliberation (formal decision-making), decision rules (rules of thumb/heuristic methods), and discipline (consciously formed habits). Deliberation is thorough but costly in time and other resources. Decision rules are less thorough but also less costly. Discipline is the least thorough, least costly, but most resistant to the harmful effects of deprivation. Deciding well is often a matter of knowing which of these three methods to use.

“Another way of thinking about how we cope with these constraints is to classify the knowledge we need to decide well by how it helps us to decide well. For example, we may classify this knowledge into explanations and predictions. Explanations help us find and refine possible courses of action. Predictions help us evaluate possible courses of action. As we shall see, distinguishing between these two types of knowledge is crucial to deciding well.

“Yet another way of thinking about how we cope with these constraints is to think about how we frame the world, which is to say how we reduce what we sense to concepts. Consider how two eminent modern scholars choose to frame the current political divide in the United States. Economist Thomas Sowell sees this divide in terms of how people view constraints on deciding well. From this frame, classical liberals tend to have a more constrained view of deciding well than modern liberals do. Sowell favors the more constrained view.⁴ In contrast, linguist George Lakoff sees this divide in terms of metaphors. From this frame, classical liberals want governments that treat their citizens as strict fathers treat their children, and modern liberals want governments that treat their citizens as nurturing parents treat their children. Lakoff favors the nurturing parent metaphor.⁵

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“⁴ Sowell, Thomas, *A Conflict of Visions: Ideological Origins of Political Struggles* (New York: William Morrow & Company, 1987).”

“⁵ Lakoff, George, *Moral Politics: How Liberals and Conservatives Think* (Chicago: University of Chicago Press, 2002).”

were changed to:

“We reduce our sensations of the world into concepts using what linguists call conceptual frameworks, or simply frames. Each of these frames provides us with a view of the world that is at least slightly different from that other frames provide us. Consider some of the many ways that we can think about what it is to decide well. One way we can think about deciding well is as a goal-oriented event or process subject to constraints. These constraints include such things as time, clarity of mind, the quality of intellectual tools, and the scarce resources to do what we would like to do. From within this frame, the term ‘well’ in the phrase ‘deciding well’ means excellence in using scarce resources.

“A second way that we can think about deciding well is to think about the ways we cope with the constraints we face. For example, we may classify the methods we use to decide into what we may call the three D’s: deliberation (formal decision-making), decision rules (rules of thumb/heuristic methods), and discipline (consciously formed habits). Deliberation is thorough but costly in time and other resources. Decision rules are less thorough but also less costly. Discipline is the least thorough, least costly, but most resistant to the harmful effects of deprivation. From within this frame, the term ‘well’ in the phrase ‘deciding well’ means excellence in matching the method we use to the problem we face.

“A third way that we can think about deciding well is to think about how we frame the world. From within this frame, the term ‘well’ in the phrase ‘deciding well’ means excellence in choosing frames.

Chapter 1, Choosing Frames Well, last paragraph

Changed “how we choose frames” to “choosing the best frame for a particular situation” in the first sentence.

Added the sentences:

“How we aspire to be wise, which is to say how we pursue the timeless end of deciding well, is the subject of this essay. We begin with a brief discussion of the difference between temporal and timeless frames.”

Chapter 1, Two Views of Deciding Well, title

Changed title to: “Temporal versus Timeless Frames.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Temporal versus Timeless Frames, first paragraph

Changed “worldviews are views of the world” to “frames are frames” in the first sentence.

Changed “worldviews” to “frames” in the second sentence.

Chapter 1, Temporal versus Timeless Frames, second paragraph

Changed “useful worldviews” to “frames” in the first sentence.

Changed “view” to “frame” in the second, fourth, and last sentences (3 occurrences).

Changed “From a timeless view” to “In contrast, from a timeless frame” in the fifth sentence.

Chapter 1, Temporal versus Timeless Frames, fourth paragraph

Changed “view” to “frame” in the second and fifth sentences (2 occurrences).

Chapter 1, Temporal versus Timeless Frames, first paragraph

Changed “view” to “frame” in the first sentence.

Chapter 1, The Need for Timeless Views, title

Changed title to: “The Need for Timeless Frames.”

Chapter 1, The Need for Timeless Frames, first paragraph

Changed “view” to “frame” in all (4 occurrences).

Chapter 1, The Need for Timeless Frames, last paragraph

Changed “view of modern science” to “frame of modern decision science” in the first sentence.

Changed “view” to “frame” and “decide well” to “prepare for unexpected problems” in the third sentence.

Chapter 1, Timeless versus Temporal Values, third paragraph

Changed “view” to “frame” in the first and last sentences (2 occurrences).

Chapter 1, Timeless versus Temporal Values, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**view**” to “**frame**” in the first and third sentences (2 occurrences).

Changed “pursuing” to “**us to pursue**” in the last sentence.

Chapter 1, Overview, first paragraph

Changed “**invariant** concept” to “concept” in the second sentence.

Chapter 2, Timeless Tools for Living Well, second paragraph

Changed “**view**” to “**frame**” in the first sentence.

Chapter 2, Timeless Tools for Living Well, third paragraph

Changed “**view**” to “**frame**” in the first sentence.

Chapter 2, Timeless Wealth, first paragraph

Changed “**view**” to “**frame**” in the first and second sentences (2 occurrences).

Chapter 2, Timeless Consumption, first paragraph

Changed “**view**” to “**frame**” in the first and fourth sentences (2 occurrences).

Chapter 2, *Tools for Pursuing Wisdom*, fifth paragraph

Changed “**view**” to “**frame**” in the fourth and seventh sentences (2 occurrences).

Chapter 2, Timeless Trade, last paragraph

Changed “**view**” to “**frame**” in the first and second sentences (2 occurrences).

Chapter 2, Timeless Taxation, first paragraph

Changed “**view**” to “**frame**” in the first sentence.

Chapter 2, Timeless Taxation, last paragraph

Changed “**view**” to “**frame**” in the first sentence.

Chapter 2, Timeless Production, third paragraph

Changed “**view**” to “**frame**” in the second and fourth sentences (2 occurrences).

Chapter 3, Pursuing the Ring of Truth, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “view” to “frame” in the first sentence.

Chapter 3, Refining Everyday Thinking, ninth paragraph

Changed “the modern view” to “a modern, temporal view” in the first sentence.

Chapter 3, Refining Deciding Well, fifth paragraph, first footnote

“¹⁶ This research program helps us choose not only how best to pursue the Truth, the Good, Wisdom, and Beauty, but also how best to pursue Justice. In other words, it helps us choose not only what we ought to want in our personal lives, but also what we ought to want in our public lives. This is the subject of the next section.”

was deleted.

Changes in Version 2009.04.22

Acknowledgments, second paragraph

Changed “more I ruminated” to “harder I tried to solve this infinitely large problem” in the ninth sentence.

Preface, , Refining Everyday Thinking, third through fifth paragraphs

“My desire for a science of deciding well conflicts with the modern belief that science concerns *definite* knowledge. Analytic philosopher Bertrand Russell clearly stated this modern belief in the introduction to his popular history of Western philosophy:

“Philosophy, as I shall understand the word, is something intermediate between theology and science. Like theology, it consists of speculations on matters as to which definite knowledge has, so far, been unascertainable; but like science, it appeals to human reason rather than to authority, whether that of tradition or that of revelation. All *definite* knowledge — so I should contend — belongs to science; all *dogma* as to what surpasses definite knowledge belongs to theology. But between theology and science there is a No Man’s Land, exposed to attack from both sides; this No Man’s Land is philosophy.”

“Russell’s beliefs about our search for knowledge, which echo Auguste Comte’s law of three phases, are fatally flawed. Foremost among these mistakes is the belief that what Russell calls science can be free of what he calls dogma. All belief systems include beliefs that are not definite. Among other things, we can never be certain that the concepts we use to express our beliefs can express definite knowledge of what causes our sensations of reality.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“I put forth a very different view of science, for which I owe debts to Benjamin Franklin, Albert Einstein, W. V. O. Quine, and Morton White. I contend that we ought to define science as the endless process of refining our beliefs into an internally consistent whole that helps us find problems to solve well, including problems that concern refining our beliefs into an internally consistent whole that helps us find problems to solve well. From this recursive view of science, deciding well is an aspect of science; science is an aspect of deciding well; and the timeless end of science concerns explaining what happens, not predicting what will happen. Given this timeless definition of science, islands of simplicity in which it is useful to claim that theories that predict well also explain well are special cases.”

were deleted.

Preface, new third paragraph

Changed “complain that I confuse” to “likely claim that my desire for a science of deciding well confuses” in the first sentence.

Changed “Einstein” to “Albert Einstein” in the last sentence.

Preface, ninth paragraph

Deleted the second sentence: “Further, to the extent that we do not decide well, so conceived, we embed new mistakes into, or reinforce existing mistakes in, our networks of knowledge-in-use.”

Changed “insight” to “simple insight” in the third sentence.

Preface, new third paragraph

Changed “2008 financial sector collapse” to “financial sector collapse” in the last sentence.

Chapter 1, Setting Words Aright, first paragraph

“*Concepts* are tools for thinking and communicating. When we use these tools well, they help us to achieve our ends (goals).”

was changed to:

“*Concepts* are tools for thinking and communicating, which, when used well, help us achieve our ends.”

Chapter 1, Setting Words Aright, second paragraph

Changed “an organic molecule” to “DNA” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Setting Words Aright, fourth paragraph

Changed “ever more wisely” to “**well when to decide well is to decide** ever more wisely” in the last sentence.

Chapter 1, Setting Words Aright, last paragraph

Changed “**As we shall see, deciding**” to “**D**eciding” in the last sentence.

Chapter 1, Choosing Frames Well, first paragraph

Changed “**C**onsider” to “**F**or example, consider” in the third sentence.

Changed “**m**eans” to “**c**oncerns” in the last sentence.

Chapter 1, Choosing Frames Well, second paragraph

Changed “**m**eans” to “**c**oncerns” in the last sentence.

Chapter 1, Choosing Frames Well, third paragraph

Changed “**m**eans” to “**c**oncerns” in the last sentence.

Chapter 1, Choosing Frames Well, last paragraph

“The problem of choosing the best frame is infinitely deep. The question of which frame we ought to choose leads us to the question of which frame we ought to choose in order to choose which frame we ought to choose. This in turn leads us to the question of which frame we ought to choose in order to choose which frame we ought to choose in order to choose which frame we ought to choose. We can never solve this infinitely large problem. We can only pretend to be certain by ignoring it, or aspire to be wise by making it part of the timeless problem of deciding well. How we aspire to be wise, which is to say how we pursue the timeless end of deciding well, is the subject of this essay. We begin with a **brief** discussion of the difference between temporal and timeless frames.”

was changed to:

“In defining the concept of excellence in choosing frames, we must choose a frame. To choose this frame, we must choose a frame. To choose this frame, we must choose a frame. And so on to infinity. We cannot solve this infinitely large problem. However, we can address it by making it part of the boundless problem of deciding well. What this boundless problem is and how we address it well is the subject of this work. We begin with a discussion of the difference between temporal and timeless frames”

Chapter 1, Temporal versus Timeless Frames, last paragraph, last three sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“When it is practical to do so, we use timeless tools to choose temporal problems to solve and temporal tools to solve these problems. We use timeless tools to help us identify the resources we are likely to need in order to solve unexpected temporal problems. We learn from experience.”

were deleted.

Chapter 1, The Need for Timeless Frames, third paragraph

Changed “view” to “frame” in the last sentence (2 occurrences).

Chapter 1, The Need for Timeless Frames, last paragraph

Changed “From the frame of modern decision science” to “To people who seek to solve temporal problems” in the first sentence.

Changed “from the timeless frame put forth in this work” to “to people who seek to address timeless problems” in the fourth sentence.

Chapter 1, Temporal versus Timeless Values, third paragraph, last sentence

“In contrast, from the timeless frame of deciding well put forth in this work, we learn ever more about timeless values by pursuing the timeless end of believing well (the Truth).”

was changed to:

“In contrast, from the timeless frame of deciding well put forth in this work, we base our values on what we have learned. The timeless concept of deciding well does include learning ever more about values; hence we learn ever more about values by pursuing the timeless end of deciding well (Wisdom).”

Chapter 1, Temporal versus Timeless Values, second to last paragraph

Changed “periods of time” to “long periods of time” in the second to last sentence.

Chapter 2, Tools for Pursuing Wisdom, second paragraph, last two sentences

“However, we ought never to forget that Alexander and Einstein were extraordinary people who lived extraordinary lives. It is impossible for us to know how much of their success was due to their temperament, talents, and simply being in the right place at the right time.”

were deleted.

Chapter 2, Tools for Pursuing Wisdom, fifth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Moved paragraph into a new subsection titled “*Chicago Screwdrivers.*”

Chapter 2, *Chicago Screwdrivers*, first paragraph

Changed “become whole” to “live well” in the tenth sentence.

Added the paragraph:

“We spend most of our waking hours using temporal tools to solve temporal problems. To a person with a hammer in hand, everything tends to look like a nail. *Just as we ought never to use a hammer to drive in screws, we ought never to use temporal tools to find problems to solve.*”

Chapter 2, Taxation, entire section

Changed “windows” to “chimneys” in all (4 occurrences).

Chapter 3, Pursuing the Ring of Truth, second paragraph

Changed “ancient, mystical” to “ancient” in the first sentence.

Chapter 3, Pursuing the Ring of Truth, third paragraph

Changed “mystical” to “ancient” in the first sentence.

Chapter 3, Refining Everyday Thinking, last paragraph

“From the invariant view of deciding well, this way of grouping fields comes closer than the modern scheme does to carving nature at its joints.”

was changed to:

“From the modern view of believing well, all of the stories that we might use to group fields are the products of human intelligence. As such, we can never be certain that one is better than the others. In contrast, from the invariant view of deciding well, we aspire to be wise by seeking to disprove the story that appears to come closest to carving nature at its joints.”

Chapter 3, Conclusion, last paragraph

Changed “Timeless science” to “Finally, timeless science” in the first sentence.

Merged paragraph with preceding paragraph.

Appendix B, *Heroic Death*, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “shortsighted worldviews” to “myopic frames” and “shortsighted personal ends” to “myopic ends” in the last sentence.

Changes in Version 2009.04.25

Acknowledgments, fifth paragraph

Changed “needed to build an intuitive editor/interactive compiler” to “needed” in the fifth sentence.

Preface, fifth paragraph

Changed “including how better” to “particularly those that concern how” in the first sentence.

Preface, sixth paragraph, last two sentences

“Finally, deciding well, so conceived, is *self-refining*. To decide well is to decide ever more wisely.”

were changed to:

“Finally, to decide well is to decide ever more wisely.”

Chapter 1, Choosing Frames Well, first paragraph, first two sentences

“We reduce our sensations of the world into concepts using what linguists call conceptual frameworks, or simply frames. Each of these frames provides us with a view of the world that is at least slightly different from that other frames provide us.”

were changed to:

“We use structures of concepts to reduce our sensations of the world to concepts. These structures, which we may call *frames*, determine how we perceive the world.”

Chapter 1, The EOQ/RTS Example, sixth paragraph

Changed “making batches of similar parts” to “producing ever more leanly by making batches of similar parts” in the fifth sentence.

Chapter 1, Temporal versus Timeless Values, third paragraph

“From a temporal frame of deciding well, people base their values on what they currently know. The temporal concept of deciding well does not include learning ever

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

more about values; hence people must look beyond the temporal process of deciding well to find sources for their values. These outside sources include such things as theistic texts, political ideologies, and moral philosophies. In contrast, from the timeless frame of deciding well *put forth in this work, we base our values on what we have learned*. The timeless concept of deciding well does include learning ever more about values; hence we learn ever more about values by pursuing the timeless end of deciding well (Wisdom).⁹”

“The change in case from the temporal view third person plural to the timeless view first person plural is not a mistake. As we shall see, we cannot separate the timeless problems *other intelligent beings* face from the timeless problems *we* face.”

was changed to:

“A major difference between temporal and timeless values is their source. From a temporal frame of deciding well, *people base their values on what they currently know*. The temporal concept of deciding well does not include learning ever more about values. People must look beyond the temporal process of deciding well to find sources for their values. These outside sources include such things as theistic texts, political ideologies, and moral philosophies. In contrast, from a timeless frame of deciding well, *we base our values on what we aspire to learn*. The timeless concept of deciding well includes learning ever more about values. We learn ever more about values by pursuing the timeless end of deciding well (Wisdom). *As we shall see, pursuing the timeless end of deciding well (Wisdom) calls for us to pursue the timeless end of believing well (the Truth)*.⁹”

“The change in case from the temporal view third person plural to the timeless view first person plural is not a mistake. As we shall see, we cannot separate the timeless problems *we* face from the timeless problems *all other intelligent beings* face.”

Chapter 1, Temporal versus Timeless Values, sixth paragraph

Changed “The villagers” to “*Given their limited experience with sources of fresh water, the villagers*” in the third sentence.

Deleted the fourth sentence: “*Given this meaning of ‘rain,’ the claim that the ground is wet because it rained is true by definition.*”

Chapter 1, Temporal versus Timeless Values, seventh through ninth paragraphs

“From a *modern*, temporal *view* of believing well, the problem of choosing concepts raises sociological questions about how people collectively choose concepts. These questions include who chooses, why they choose as they do, and why other people accept what they choose.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From a timeless view of believing well, the problem of choosing concepts raises the question of what system of concepts best helps us believe well. Addressing this question calls for us to consider the ultimate end of believing well. Is it a means of pursuing the Good? Is it a means of pursuing the Truth, which is to say an end in itself? Is it a means of pursuing Justice? Is it all of these things? Is it all of these things and more?”

“From the modern liberal view, **there is no right or wrong answer to these questions. This is because** there is no disputing what end or ends people should value most highly within the bounds set by the political problem of maintaining the freedom to choose what matters most to each person, which people collectively do by maintaining a good society, a society in which the least well-off members have what they need to live decent lives.”

“**“The primary source of this essential description of modern liberalism is John Dewey, who reduced German idealism and American pragmatism to a democratic socialist stew.”**”

were changed to:

“From a temporal **frame** of believing well, the problem of choosing concepts raises sociological questions about how people collectively choose concepts. These questions include who chooses, why they choose as they do, and why other people accept what they choose. **In contrast,** from a timeless frame of believing well, the problem of choosing concepts raises the question of what system of concepts best helps us believe well. Addressing this question calls for us to consider the ultimate end of believing well. Is it a means of pursuing the Good? Is it a means of pursuing the Truth, which is to say an end in itself? Is it a means of pursuing Justice? Is it all of these things? Is it all of these things and more?”

Chapter 1, Temporal versus Timeless Values, new eighth paragraph

Changed the first sentence from:

“From the timeless **view** put forth in this work, the timeless end of believing well emerges from the endless pursuit of deciding well.”

to a new paragraph:

“From the timeless **frame** put forth in this work, **which we may reasonably call the invariant frame of deciding well,** the timeless end of believing well emerges from the endless pursuit of deciding well. **By deciding well, we learn to decide ever more wisely, which includes learning ever more about believing well.”**

Changed “**stockbrokers**” to “**bankers**” in the new third sentence of the new ninth paragraph.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Temporal versus Timeless Values, last paragraph

Changed “from the **timeless frame of deciding well put forth in this work, which we may reasonably call the** invariant frame of deciding well,” to “from the invariant frame of deciding well” in the third sentence.

Chapter 1, Overview, second paragraph

Changed “**taxation, and** production” to “production, **taxation, and profit**” in the last sentence.

Chapter 2, Timeless Tools for Living Well, last paragraph

Changed “**taxation, and** production” to “production, **taxation, and profit**” in the last sentence.

Chapter 2, Timeless Taxation, entire section

Moved section to behind Timeless Production Section.

Added the section:

“**Timeless Profit**

Profit is the return on acting wisely. From the temporal frame of modern economics, profit is what is left over from a stream of income after people have paid fair market value for all the resources they used to produce it. From the classical liberal view of modern economics, people are free to spend the profits they earn as they please. From the modern liberal view, people owe part of their profits to society for the use of socially owned resources. Some modern liberals believe that this includes the debt people owe to others for the use of knowledge they use freely. According to these modern liberals, people owe up to ninety percent of their profits to society.⁶

“From the invariant frame of deciding well, we owe a debt to those people who created the knowledge we use freely, and to the whole of life for providing us with the natural resources we use freely. We pay these debts by deciding well. In effect, we pay these debts to the stewards of life rather than to the stewards of society.”

⁶ Alperovitz, G. and Daly, L., *Unjust Deserts: How the Rich Are Taking Our Common Inheritance and Why We Should Take It Back* (New York: The New Press, 2008).”

Chapter 3, The Ring of Truth, last paragraph

Changed “of universal invariance” to “**that emerges from the** universal invariant of **deciding well**” in the last sentence.

Chapter 3, *Beauty as a Guide to Deciding Well*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In deciding well, we use intellectual tools to help us find problems to solve. **We may divide these tools into two groups. The first helps us to choose “good” problems. The second helps us to choose “right” rules for deciding well.** When we use these tools to make major decisions, we ought to compare the results of several tools. The less the tools that we use have in common, the less is the risk that the results contain a common error. Hence, we ought to use **both tools that aim at “good” problems and tools that aim at “right” rules for deciding well.** **We also ought to use** only those tools that help us pursue the highest ends that we can imagine, only those tools that help us pursue timeless ends. When all the tools we use to find problems to solve yield the same result, we have found a beautiful problem to solve.”

was changed to:

“ In deciding well, we use intellectual tools to help us find problems to solve. When we use these tools to make major decisions, we ought to compare the results of several tools. The less the tools that we use have in common, the less is the risk that the results contain a common error. Hence, we ought to use only those tools that help us pursue the highest ends that we can imagine, only those tools that help us pursue timeless ends. When all the tools we use to find problems to solve yield the same result, we have found a beautiful problem to solve.”

Chapter 3, *The Elephant in the Room*, third paragraph

Changed “the **Divine**” to “the **Good, the Truth, Wisdom, Justice, and Beauty**” in the second sentence.

Changed “**the Divine**” to “**these transcendent values**” in the third sentence.

Chapter 3, *Refining Everyday Thinking*, eighth paragraph

Deleted the second to last sentence: “**When these two tendencies unite, they lead us ever further away from these ideal means.**”

Changed “**catastrophes caused by the sudden replacement of knowledge for non-knowledge resources**” to “**catastrophic releases of pent-up stress from our networks of knowledge-in-use**” in the last sentence.

Chapter 3, *Refining Everyday Thinking*, ninth paragraph

Changed “**a modern, temporal view**” to “**the modern view of believing well**” in the first sentence.

Changed “**From**” to “**In contrast, from**” in the second sentence.

Changed “**are born to be**” to “**are**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**the larger** view” to “**a longer** view” in the last sentence of the first footnote.

Chapter 3, Refining Everyday Thinking, last paragraph

Changed “one” to “**any** one” in the second sentence.

Chapter 3, Refining Deciding Well, first paragraph, last footnote

Added the sentence: “**Biologists call this a teleonomic program.**”

Chapter 3, Refining Deciding Well, second paragraph, footnote

Changed “(positive)” to “positive” in the first sentence.

Chapter 3, Refining Deciding Well, fifth paragraph

Changed “deciding well” to “**wealth (seeking the Truth about the Good) by refining our knowledge of deciding well (seeking the Truth about Wisdom)**” in the first sentence.

Changed “deciding well **based on pursuing the timeless concept of wealth**” to “deciding well” in the last sentence.

Changed “**various**” to “**several**” in the first sentence of the last footnote.

Chapter 3, Refining Deciding Well, sixth paragraph, third sentence

Deleted the third sentence: “**As we saw in the EOQ/RTS example, deciding well is not the same thing as acting efficiently.**”

Changed “**tribal** caves of our **ancestors**” to “caves of our **ancestral clans**” in the last sentence.

Chapter 3, *A Crude Look at the Whole*, third paragraph, footnote

Changed the first sentence:

“**Agent-based computer simulations of this complex phenomenon should** explain what modern economists call Kondratieff waves, business cycles, and speculative bubbles.”

to:

“**From the invariant view of deciding well, we ought to replace econometric macroeconomic models with** agent-based computer simulations. **These simulations ought to** explain what modern economists call Kondratieff waves, business cycles, and speculative bubbles.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “phenomena” to “phenomena **in social systems**” in the fifth sentence.

Moved the footnote to the end of the last paragraph.

Chapter 3, *A Crude Look at the Whole*, last paragraph

Changed “this crude model **helps us predict**” to “this crude model **explains**” in the first sentence.

Deleted the second sentence: “**It focuses on deciding well rather than on the effects of deciding poorly.**”

Chapter 3, Conclusion, last paragraph

Changed “set of beliefs” to “set of beliefs **as a whole**” in the last sentence.

Chapter 4, Promote Deciding Well, not Stability, last paragraph

“For example, the best monetary policy is the one that best helps us to decide well. If a government has chosen a central banking system, central bankers should promote deciding well, not macroeconomic stability. Central bankers face two major choices. They must choose whether to control the supply or the price of money. They must also choose whether to act with or without warning. Of the four policies created by these two choices, the one that is least harmful to deciding well is to control the money supply by means of actions declared far in advance. Central bankers should not bury the problems that disrupt the smooth flow of resources. They should not hide these problems from the people best able to solve them.

was reduced to a footnote to the last sentence of the preceding paragraph and replaced by:

“Deciding well creates the need for ever more knowledge of how to decide well. The better we decide, the harder it is to know how to decide better. Further, the better we all decide, the faster things change. The faster things change, the harder it is to know how to decide well. Policymakers ought to promote knowledge of how to decide well by promoting the timeless science of deciding well.”

Chapter 4, Promote Deciding Well, entire section

Promote Decision Science

Governing ourselves well is a matter of deciding well. Deciding well creates the need for ever more knowledge of how to decide well. The better we decide, the harder it is to know how to decide better. Further, the better we all decide, the faster things change. The faster things change, the harder it is to know how to decide well. Policymakers ought to promote knowledge of how to decide well by promoting the timeless science of deciding well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Chapter 4, Timeless Liberalism, second paragraph

Changed “tribal justice” to “clan justice” in the last sentence.

Chapter A, A Finer Timeless View, title

Changed title to “Producing Ever More Leanly.”

Appendix A, Producing Ever More Leanly, first paragraph, first sentence

“The endless process of producing well is a matter of replacing non-knowledge resources with knowledge.”

was changed to:

“From the invariant view of deciding well, the endless process of producing well is a matter of creating wealth using ever fewer non-knowledge resources.”

Appendix B, A Common Timeless End, first paragraph

Deleted “, which we do by deciding well” from the third sentence.

Appendix B, Schweitzer's Universal Spiritual Need, last paragraph

Changed “the predominance of” to “the” in the second sentence.

Changes in Version 2009.05.05

Preface, sixth paragraph

Changed “cultural evolution” to “cultural evolution in people (embodied beings who use language to plan and learn from their actions)” in the second sentence.

Changed “intelligent beings” to “people” in the last sentence.

Deleted the last sentence: “Finally, to decide well is to decide ever more wisely.”

Preface, ninth paragraph

Changed “cultural evolution” to “cultural evolution in people” in the second sentence.

Deleted the phrase “into how intelligent beings decide well” from the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, last paragraph

Deleted the phrase: “, which opened with the financial sector collapse,” from the last sentence.

Chapter 1, Temporal versus Timeless Ends, third paragraph, footnote

Changed “intelligent beings” to “people” in the last sentence.

Chapter 2, Timeless Production, first paragraph

Changed “intelligent action” to “producing well” in the first sentence.

Chapter 3, *Beauty as a Guide to Deciding Well*, first paragraph

Deleted the first sentence: “We can use the “ring of Truth” to help us judge our moral arguments.”

Changed “living well (the Good)” to “deciding well” in the first sentence.

Chapter 3, *Beauty as a Guide to Deciding Well*, second paragraph

Changed “intelligent life” to “people (embodied intelligent beings who use language to plan and learn from their actions)” in the third sentence.

Changed “intelligent life” to “people” in the fourth sentence.

Chapter 3, Refining Everyday Thinking, ninth paragraph

Changed “others” to “other people” in the fifth sentence.

Changed “Others” to “Other people” in the sixth sentence.

Changed “intelligent life” to “the people” in the last sentence.

Chapter 3, Refining Everyday Thinking, ninth paragraph, footnote

Changed “seeking the temporal truth rather than seeking the boundless factors of deciding well” to “helping people believe well rather than helping them live well” in the second sentence.

Changed “changes the world” to “changes the world for the better” in the third sentence.

Chapter 3, Refining Everyday Thinking, eleventh paragraph

Changed “intelligent life sciences” to “public sciences” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “intelligent life” to “people” in last sentence.

Chapter 3, Refining Everyday Thinking, twelfth paragraph

Changed “intelligent life sciences” to “public sciences” in the first sentence.

Changed “intelligent life sciences” to “public sciences” in the last sentence.

Chapter 3, Refining Everyday Thinking, thirteenth paragraph

Changed “intelligent life” to “people” in last sentence.

Chapter 3, Refining Deciding Well, second paragraph

Changed “intelligent agents” to “people” in the first sentence.

Changed “systems of intelligent agents” to “these systems” in the third and last sentences (2 occurrences).

Chapter 3, Refining Deciding Well, fifth paragraph

Changed “embodied intelligent beings” to “people” in the fifth sentence.

Chapter 3, Conclusion, last paragraph

Changed “research program of, by, and for intelligent life” to “endless process of refining everyday thinking” in the second sentence.

Changed “intelligent life sciences” to “public sciences” in the fourth sentence.

Chapter 4, A Sovereign Story of Timeless Science, second paragraph

Changed “intelligent beings” to “people” in the second sentence of the sovereign rights story.

Chapter 4, Promote Deciding Well, not Stability, entire subsection

Moved subsection to after the next subsection, *Promote Savings for Welfare*.

Chapter 4, Promote Deciding Well, not Stability, second paragraph

“Deciding well creates the need for ever more knowledge of how to decide well. The better we decide, the harder it is to know how to decide better. Further, the better we all decide, the faster things change. The faster things change, the harder it is to know how to decide well. Policymakers ought to promote knowledge of how to decide well by promoting the timeless science of deciding well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“Policymakers ought to take the long-term view. This calls for them to promote deciding well rather than stability. Only when civilization as a whole is threatened should they prefer stability to deciding well. As we have seen in financial markets over the last twenty years, the belief that policymakers will promote stability encourages bankers to let others worry about the long-term consequences of the mistakes they embed in our networks of knowledge-in-use. These mistakes include such things as financial products that look good in the short run but are likely to fail in the long run; the proliferation of models for pricing financial assets that presume periods of great turbulence are rare; and a regulatory environment that favors economic efficiency and political expedience over the timeless end of deciding well.

“Living in a civilization dedicated to pursuing the timeless end of deciding well calls for people who are able to thrive in winds and survive in gales of creative destruction. Policymakers can help prepare people for this by promoting knowledge of timeless science.”

Chapter 4, Timeless Liberalism, second paragraph

Changed “intelligent beings” to “people” in the third sentence.

Appendix A, *Production Links*, third paragraph, first footnote

“³ Ohno, Taiichi, [*Toyota Production System: Beyond Large-Scale Production*](#) (Cambridge, MA: Productivity Press, 1988), pp. 25–27. Note that American supermarkets inspired Ohno to design a “pull” system.”

was changed to:

“³ American supermarkets inspired Ohno to design a “pull” system. Taiichi, [*Toyota Production System: Beyond Large-Scale Production*](#) (Cambridge, MA: Productivity Press, 1988), pp. 25–27.”

Appendix A, Less is More, last paragraph

Changed “intelligent life” to “people” in the last sentence.

Appendix B, Einstein's Twin Warnings, first paragraph

Changed “re-link mystically” to “re-link” in the first sentence.

Changes in Version 2009.05.06

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Acknowledgments, fifth paragraph, third and fourth sentences

“However, we may learn from others and from experience. My idea was to create a computer language that lowers the cost of learning.”

was changed to:

“My idea was to create a computer language that addresses the problem of what we don’t know about what we don’t know.”

Acknowledgments, fifth paragraph, third and fourth sentences

“Understanding the process by which we progress towards these timeless ends can provide us with tools for helping us find better problems to solve.”

was changed to:

“Understanding the process by which we progress toward these timeless ends can help us learn what we need to learn to progress ever more readily.”

Preface, eighth paragraph

Changed “our *civil* ultimate end, which is to say our” to “our” in the first sentence.

Chapter 1, Choosing Frames Well, last paragraph

Changed “begin with” to “start with” in the last sentence.

Chapter 3, Refining Everyday Thinking, fourth paragraph

Changed “We” to “From the invariant view of deciding well, we” in the first sentence.

Chapter 3, Refining Everyday Thinking, tenth and eleventh paragraphs

“The modern way of thinking about science as the temporal end of believing well concerns what the producers of knowledge are able to supply under current constraints. As we saw in the EOQ/RTS example, temporal views tend to blind us to timeless ends. Here, the modern view of science tends to blind us to the timeless end of believing well (the Truth), and so to the timeless ends of living well (the Good), deciding well (Wisdom), governing ourselves well (Justice), and contemplating well (Beauty).¹¹”

“We can see this tendency in the modern, temporal way of organizing academic fields into the *natural sciences*, the *social sciences*, and the *humanities*. From the invariant view of deciding well, we ought to replace these temporal categories with the *true sciences*, the *public sciences*, and the *arts*. Like the natural sciences, the true sciences would include all fields that seek to refine our beliefs about the Truth without concern

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

for the Good, Justice, or Wisdom. Unlike the natural sciences, the true sciences would not imply that the beliefs and actions of people are not a part of nature.”

“¹¹ In contrast, from the invariant view of deciding well, the problem of believing well cannot be solved. In the words of Dwight Eisenhower, which call to mind the incompleteness theorems of Kurt Gödel, “If a problem cannot be solved, enlarge it.” Enlarging the problem of believing well to the limits of imagination calls for considering what we need to believe well, which includes the boundless factors of deciding well (the Good, the Truth, Wisdom, Justice, and Beauty). In modern economic terms, this argument for a holistic approach to believing well concerns the demand side of believing well. Readers interested in a supply-side argument for a holistic approach to believing can find one in W. V. O. Quine’s “Two Dogmas of Empiricism.””

were changed to:

“From the modern view of believing well, science concerns what the producers of knowledge are able to supply under current constraints. In contrast, from the invariant view of deciding well, science concerns not only what we are able to supply, but also what we need to decide well: We can never solve the problem of believing well. However, we may address it. In the words of Dwight Eisenhower, which call to mind the incompleteness theorems of Kurt Gödel, “If a problem cannot be solved, enlarge it.” Enlarging the problem of believing well to the limits of imagination calls for considering what we need to believe well. These needs include the Good, the Truth, Wisdom, Justice, and Beauty.”

“As we saw in the EOQ/RTS example, temporal views tend to blind us to timeless ends. In the case of believing well, the modern view of science tends to blind us to the timeless end of believing well (the Truth), and so to the timeless ends of living well (the Good), deciding well (Wisdom), governing ourselves well (Justice), and contemplating well (Beauty).

“We can see the tendency of the modern view of science to blind us to timeless ends in the modern way of organizing academic fields into the *natural sciences*, the *social sciences*, and the *humanities*. From the modern view, which concerns what producers are able to supply under current constraints, these temporal categories make sense. In contrast, from the invariant view of deciding well, we ought to replace these temporal categories with timeless categories. One possibility is to replace them with the *true sciences*, the *public sciences*, and the *arts*. Like the natural sciences, the true sciences would include all fields that seek to refine our beliefs about the Truth without concern for the Good, Justice, or Wisdom. Unlike the natural sciences, the true sciences would not imply that the beliefs and actions of people are not a part of nature.”

“¹¹ In modern economic terms, this argument for a holistic approach to believing well concerns the demand side of believing well. Readers looking for supply-side arguments for a holistic approach to believing would do well to start with W. V. O. Quine’s “Two Dogmas of Empiricism.””

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, Refining Everyday Thinking, last paragraph

Changed “appears to **come closest to carving nature at its joints**” to “appears to **be most beautiful by acting as if the story is true beyond all doubt**” in the last sentence.

Changes in Version 2009.05.06

Response to Osborn Edit

Acknowledgments, second paragraph

Changed “often **told us**” to “often **mentioned**” in the third sentence.

Changed “**told us**” to “**mentioned**” in the fourth sentence.

Acknowledgments, fourth paragraph

Changed “privately-held” to “privately held” in the first sentence.

Changed “A lecture by Taiichi Ohno” to “**However**, a lecture by Taiichi Ohno” in the last sentence.

Acknowledgments, last paragraph

Changed “**My father**” back to “**He**” in the second sentence.

Changed “claimed” to “claimed **that**” in the fifth sentence.

Changed “simply” to “**more** simply” in the last sentence.

Acknowledgments, last paragraph

Changed “claimed” to “claimed **that**” in the fifth sentence.

Changed “simply” to “**more** simply” in the last sentence.

Preface, fourth paragraph

Changed “towards” to “toward” in the last sentence.

Preface, ninth paragraph

Changed “adjusts” to “adjusted” in the second sentence of the block.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, tenth paragraph

“One conclusion we may draw from this simple analysis is that **economic models that** assume **that** turbulence tends towards a “natural” level severely underestimates the probability of great turbulence. **This is consistent with the criticisms of these models by Benoit Mandelbrot and Nassim Taleb.**”

was merged with the eleventh paragraph and changed to:

“One conclusion we may draw from this simple analysis is that **assuming** turbulence tends toward a “natural” level **will tend to cause us to** severely underestimate the probability of great turbulence.”

Preface, new tenth paragraph

Changed “;” to “,” in the new third sentence.

Chapter 1, Setting Words Aright, paragraph

Changed “Feedback in **The Economy**” to “Feedbacks in **the Economy**” in the second sentence.

Chapter 1, Setting Words Aright, paragraph

Changed “Feedback in **The Economy**” to “Feedbacks in **the Economy**” in the second sentence.

Chapter 1, Setting Words Aright, last paragraph

Changed “north” to “north,” and “center” to “center,” in the third sentence.

Chapter 1, Choosing Frames Well, first paragraph

Changed “**that**” to “**in which**” in the third sentence.

Changed “**that**” to “**in which**” in the fourth sentence.

Changed “**things**” to “**factors**” in the fifth sentence.

Chapter 1, Choosing Frames Well, second paragraph

Changed “**that**” to “**in which**” and “**way**” to “**way in which**” in the first sentence.

Chapter 1, Choosing Frames Well, third paragraph

Changed “**that**” to “**in which**” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Choosing Frames Well, last paragraph

Changed “is” to “are” in the seventh sentence.

Chapter 1, Temporal versus Timeless Frames, second paragraph, footnote

Changed “we choose, or is chosen” to “that we choose, or that is chosen” in the first sentence.

Changed “either a temporal” to “a temporal” in the second sentence.

Changed “problem a supervisor” to “problem, a supervisor” in the third sentence.

Changed “problem a supervisor” to “problem, a supervisor” in the last sentence.

Chapter 1, The EOQ/RTS Model, fourth paragraph

Changed “when and how:” to “when and how” in the seventh sentence.

Chapter 1, The EOQ/RTS Model, sixth paragraph

Changed “trucks the same way” to “trucks in the same way” and “mass production quality” to “mass-production quality” in the fourth sentence.

Chapter 1, The Need for Timeless Views, second to last paragraph

Changed “believe the terms” to “believe that the terms” in the second sentence.

Chapter 1, Temporal versus Timeless Values, second to last paragraph

Changed “provide us” to “provide us with” in the seventh sentence.

Chapter 1, Overview, second paragraph

Changed “brief” to “a brief” in the first sentence.

Chapter 2, Pleasure and Pain, first paragraph, footnote

Changed “brains interpret” to “brain interprets” in the first sentence.

Chapter 2, Chicago Screwdrivers, last paragraph

Changed “hammer in hand” to “hammer in their hand” in the second sentence.

Chapter 2, Timeless Profit, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “knowledge they use freely” to “knowledge **that** they use freely” in the fifth sentence.

Chapter 3, Beauty as a Guide to Deciding Well, second paragraph

Changed “consider what timeless end” to “consider **to** what timeless end” in the third sentence.

Chapter 3, Refining Everyday Thinking, sixth paragraph

Changed “predict and test” to “predict, **and** test” in the second sentence.

Chapter 3, Refining Everyday Thinking, seventh paragraph

Changed “actions we sail” to “actions, **we** sail” in the first sentence.

Chapter 3, Refining Deciding Well, third paragraph

Changed “know how to define ‘wealth’ **exactly.**” to “know **exactly** how to define ‘wealth.’” in the last sentence.

Chapter 3, Learning from Experience, fourth paragraph

Changed “problem here **is one of**” to “problem here is” in the first sentence.

Chapter 3, A Crude Look at the Whole, second paragraph

Changed “adjust**s**” to “adjust**ed**” in the second sentence.

Changed “all deciding imperfectly” to “all **that** deciding imperfectly” in the fourth sentence.

Chapter 4, The Explicit Experiment, second paragraph, footnote

Changed “produced,**”** to “produced:**”** in the last sentence.

Chapter 4, The Explicit Experiment, third paragraph

Changed “United States” to “United States**’**” in the first sentence.

Chapter 4, The Explicit Experiment, fourth paragraph

Changed “:**”** to “**”** and “**to deny**” to “**as denying**” in the first sentence.

Chapter 4, The Explicit Experiment, fourth paragraph, last footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “undermined” to “**has** undermined” in the first sentence.

Chapter 4, Summary and Conclusion, first paragraph

Changed “towards” to “toward” in the fifth sentence.

Appendix A, *Machine Tools*, first paragraph

Changed “fool-proofing” to “fool proofing” in the last sentence.

Appendix A, *Machine Tools*, last paragraph

Changed “fool-proofing” to “fool proofing” in the second and third sentences (2 occurrences).

Changed “foolproof device” to “fool proofing device” and “insures the team” to “insures **that** the team” in the fourth sentence.

Appendix A, *Rapid Tool Setting*, last paragraph

Changed “fool-proofing” to “fool proofing” in the last sentence.

Appendix A, *Inducing Knowledge*, third paragraph

Changed “kanban” to “kanban **pairs**” in the first sentence.

Appendix A, *Inducing Knowledge*, last paragraph

Changed “kanban” to “kanban **pairs**” in the second sentence.

Appendix B, *Worldly Benefits of Detachment*, last paragraph

Changed “confused” to “confuses” in the fifth sentence.

Appendix B, *Experiencing the Mysterious*, first paragraph

Changed “deciding well **wisely** calls for us **to**” to “deciding well calls for us” in the first sentence.

Changes in Version 2009.05.07

Response to Lissack Comments

Entire document

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “boundless factors” to “timeless factors”

This radical change was prompted by Michael's request for a footnote to explain the relation between boundless and timeless factors. The two could be used interchangeably within this essay. However, boundless implies a temporal reference point, and timeless does not. Timeless is the better choice for breaking people out of their temporal reference points. It also has the advantage of making the work more consistent, and, perhaps, more coherent. The juxtaposition of bounded factors and timeless factors emphasizes the self-similar nature of the invariant concept of deciding well.

Preface, seventh paragraph

Changed “never have in excess” to “never have completely” in the second sentence.

Chapter 1, Temporal versus Timeless Values, sixth paragraph

Changed “these new conditions” to “the new condition of having something other than water that falls from the sky make the ground wet” in the fifth sentence.

Changed “will likely lead to the loss of their seed” to “may cause them to plant their crop at the wrong time” in the last sentence.

Chapter 1, Temporal versus Timeless Values, ninth paragraph, first sentence

“Over time, we learn to distinguish between the factors of deciding well that we can have in excess, which we may call *bounded factors of deciding well*, and the factors of deciding well that we can never have in excess, which we may call *timeless factors of deciding well*.”

was changed to:

“Over time, we learn to distinguish between two types of factors of deciding well. The first are those factors that we can have in excess. We may call these *bounded factors of deciding well*. The second are those factors that we can never have completely. We may call these *timeless factors of deciding well*.”

“¹¹ The frame here is neither temporal nor timeless, but rather a combination of both. The timeless end of deciding well calls for believing well in frames that range from the short run to the infinitely long run. In Daoist terms, it calls for believing well about steps as well as paths, and paths as well as steps. A journey of a thousand miles starts from under our feet (*Daodejing*, chapter 64).”

Chapter 1, Overview, sixth paragraph

“In this section, we saw how the invariant concept of deciding well can help us pursue the timeless end of deciding well (Wisdom).”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“In this section, we saw how the invariant concept of deciding well **gives rise to a structure of timeless values.**”

Chapter 2, Tools for Living Well, second and third paragraphs

“From a temporal frame of deciding well, people live well by using intellectual tools (concepts, models, etc.) to find and solve problems. A modern maxim tells them simply to “plan your work and work your plan.”

“**F**rom the invariant frame of deciding well, we live well by using timeless intellectual tools to help us find temporal problems to solve and temporal intellectual tools to help us solve temporal problems. We live well by planning our lives using timeless tools and working our plans using temporal tools. In planning terms, we live well by planning our lives using strategic tools and working our plans using tactical tools.”

were changed to:

“From a temporal frame of deciding well, people live well by using intellectual tools (concepts, models, etc.) to find and solve problems. A modern maxim tells them simply to “plan your work and work your plan.” **In contrast**, from the invariant frame of deciding well, we live well by using timeless intellectual tools to help us find temporal problems to solve and temporal intellectual tools to help us solve temporal problems. We live well by planning our lives using timeless tools and working our plans using temporal tools. In planning terms, we live well by planning our lives using strategic tools and working our plans using tactical tools.”

Chapter 3, third paragraph

Changed “**find problems to solve**” to “**understand how our actions may change the world**” in the fourth sentence.

Chapter 3, Refining Deciding Well, fourth paragraph

“The timeless concept of science also calls for us to refine the set of stories that we use to explain what happens in the systems we build to live and work together by how well they help us find temporal problems to solve. **We may begin by weeding out all stories that are not clear, concise, and logical. What remains is a set of precise stories that we use to explain what happens in the systems we build to live and work together. We may then refine this set by weeding out stories that fail to meet our (evolving) standards for helping us find problems to solve. What should remain is a set of refined stories that we use to find problems to solve.** The rub is that we do not know exactly what it is that we ought to seek, which is to say that we do not know how to define ‘wealth’ exactly.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The timeless concept of science also calls for us to refine the set of stories that we use to explain what happens in the systems we build to live and work together by how well they help us find temporal problems to solve. The rub is that we do not know exactly what it is that we ought to seek, which is to say that we do not know how to define ‘wealth’ exactly.”

Chapter 3, A Crude Look at the Whole, first paragraph

“Imagine free people pursuing the timeless end of deciding well. People pursuing the timeless end of deciding well use timeless tools to help them identify the things they are likely to need in order to solve unexpected problems. When it is practical to do so, they also use timeless tools to choose temporal problems and temporal tools to solve these problems. By pursuing the timeless end of deciding well, they learn to thrive in winds and survive in gales of creative destruction.”

was merged into the second paragraph and changed to:

“Imagine that we are free people pursuing the timeless end of deciding well.”

Changes in Version 2009.05.07

Acknowledgments, fifth paragraph, second and third sentences

“Decision models can represent what we believe we know about what we know (“known knowns”) and what we don’t know (“known unknowns”), but not what we don’t know about what we don’t know (“unknown unknowns”). My idea was to create a computer language that addresses the problem of what we don’t know about what we don’t know.”

were deleted.

Acknowledgments, fifth paragraph

Changed “what we don’t know” to “what we don’t know about what we don’t know” in the new third sentence.

Acknowledgments, fifth paragraph

Changed “Howard Sherman, SFI’s “official unofficial philosopher of science” during the 1990s,” to “Howard Sherman” in the new fifth sentence.

Acknowledgments, fifth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “W. Brian Arthur, **an economist who values his search for useful truth more than his professional reputation,**” to “W. Brian Arthur” in the new sixth sentence.

Preface, sixth paragraph

Changed “**the same**” to “**true (useful)**” in the last two sentences (2 occurrences).

Preface, tenth paragraph

Changed “**turbulence by lowering** the quality” to “the quality” in the second sentence.

Preface, tenth paragraph, fourth sentence

“**Hence,** the choice we face is not between good times and bad times, **but** rather between cycles of good times and bad times, and longer cycles of good times and wretched times.”

was moved to the end of the paragraph and changed to:

“**The** choice we face is not between good times and bad times. **It is** rather between cycles of good times and bad times, and longer cycles of good times and wretched times.”

Chapter 1, The Need for Timeless Frames, last paragraph

Changed “**To people who seek to solve** temporal **problems**” back to “**From the frame of modern decision science**” in the first sentence.

Changed “**to people who seek to solve** timeless **problems**” to “**from the timeless frame of deciding well put forth in this work**” in the fourth sentence.

Chapter 2, The Need for Timeless Science, first paragraph

Changed “**new logic**” to “**the success of this strategy**” in the fifth sentence.

Chapter 3, The Elephant in the Room, second paragraph

Changed “satisfy this need” to “**seek to** satisfy this **insatiable** need” in the fourth sentence.

Chapter 3, Refining Everyday Thinking, second to last paragraph, last sentence

“Unlike the humanities, the arts would **also include what other people create.**¹²”

“¹² **From the modern view, the arts do not help us decide well. There is no difference between seeking beauty and seeking Beauty. There is no disputing taste. In contrast,**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

from the timeless view of believing well, the arts help us to decide well. There *is* a difference between seeking beauty and seeking Beauty. The arts ought to do more than shock us or speak to us. The arts ought to enlighten us. This is not to say that history is nothing more than literature. History is literature constrained by the methods and fashions of historians.”

was changed to:

“Unlike the humanities, the arts would help us pursue the timeless end of contemplating well (Beauty), hence the timeless ends of living well (the Good), believing well (the Truth), deciding well (Wisdom), and governing ourselves well (Justice).¹²”

¹² The arts ought to do more than shock us or speak to us. The arts ought to enlighten us. This is not to say that history is nothing more than literature. History is literature constrained by the methods and fashions of historians.”

Chapter 4, Madison quote

Changed “What is government itself” to “But what is government itself,” in the first sentence.

Appendix B, A Common Timeless End, first paragraph

Changed “civil” to “publicly proclaimed and practiced” in the first sentence.

Changed “civil” to “public” in the second sentence.

Changes in Version 2009.05.12

Preface, fourth paragraph

Changed “learn what we need to learn to progress” to “progress” in the last sentence.

Preface, fourth paragraph

Changed “assuming turbulence tends toward a “natural” level will tend to cause” to “ignoring the mistakes we embed into our networks of knowledge-in-use will case” in the first sentence.

Chapter 1, Setting Words Aright, last paragraph

Changed “linguistic convention” to “convention” in the second sentence.

Chapter 1, Temporal versus Timeless Values, ninth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Over time, we learn to distinguish between two types of factors of deciding well. The first are those factors that we can have in excess. We may call these *bounded factors of deciding well*. **The second are those factors that we can never have completely. We may call these *timeless factors of deciding well*.**” Freedom, trust, and scarce resources are bounded factors of deciding well. For example, we do not need the freedom to cripple or kill our business competitors, boundless trust in the integrity of bankers, or a different luxury car for each day of the week. **In contrast**, the Good, the Truth, and Wisdom are timeless factors of deciding well. We need the Good to avoid deprivation, which hinders us from deciding well. We need the Truth to avoid ignorance, which also hinders us from deciding well. Wisdom is knowledge of how to decide well. We can never have too much knowledge of how to decide well.”

“¹¹ The frame **here is neither temporal nor timeless, but rather a combination of both**. The timeless end of deciding well calls for believing well in frames that range from the short run to the infinitely long run. In Daoist terms, it calls for believing well about steps as well as paths, and paths as well as steps. A journey of a thousand miles starts from under our feet (*Daodejing*, chapter 64).”

was changed to:

“Over time, we learn to distinguish between two types of factors of deciding well. The first are those factors that we can have in excess. We may call these *bounded factors of deciding well*. Freedom, trust, and scarce resources are bounded factors of deciding well. For example, we do not need the freedom to cripple or kill our business competitors, boundless trust in the integrity of bankers, or a different luxury car for each day of the week. **The second are those factors that we can never have completely. We may call these *timeless factors of deciding well*. For example**, the Good, the Truth, and Wisdom are timeless factors of deciding well. We need the Good to avoid deprivation, which hinders us from deciding well. We need the Truth to avoid ignorance, which also hinders us from deciding well. Wisdom is knowledge of how to decide well. We can never have too much knowledge of how to decide well.”¹¹”

“¹¹ The frame **that includes both boundless and timeless factors combines temporal and timeless elements**. The timeless end of deciding well calls for believing well in frames that range from the short run to the infinitely long run. In Daoist terms, it calls for believing well about steps as well as paths, and paths as well as steps. A journey of a thousand miles starts from under our feet (*Daodejing*, chapter 64).”

Chapter 3, Refining Everyday Thinking, last paragraph

Changed “beautiful” to “beautiful, **the story that appears most likely to carve nature at its joints**” in the last sentence.

Chapter 3, A Crude Look at the Whole, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “Unlike **econometric** models, **which** modern economists use” to “Unlike **the** models modern economists use” in the first sentence.

Chapter 4, *The Explicit Experiment*, last paragraph

Changed “governing **ourselves** well” to “governing well” in the first sentence.

Chapter 4, *A Sovereign Story of Timeless Science*, last paragraph

Changed “beliefs” to “beliefs **beyond reason**” in the last sentence.

Chapter 4, *Promote Deciding Well, not Stability*, first paragraph, footnote

Changed “deciding well, **not macroeconomic stability**” to “deciding well **over macroeconomic stability in all but the direst of circumstances**” in the second sentence.

Chapter 4, *Timeless Liberalism*, second paragraph

Changed “**or even**” to “**including**” in the third sentence.

Chapter 4, *Timeless Liberalism*, second paragraph, fourth sentence

“**Justice calls for us to pursue happiness ever more justly, hence ever more wisely, ever more truly, and ever more beautifully.**”

was deleted.

Chapter 4, *Timeless Liberalism*, fourth paragraph

Changed “slows progress **and**” to “**not only** slows progress **but also**” in the last sentence.

Changes in Version 2009.05.20

Acknowledgments, fifth paragraph

Changed “financial **decision-making**” to “**learning in** financial **analysis**” in the first sentence.

Changed “**programming** tools” to “**object-oriented software** tools” in the second sentence.

Changed “computer language” to “**financial analysis** computer language” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, tenth paragraph

Changed “turbulence” to “**the amount of such** turbulence” in the fifth sentence of the block quote.

Changed “**turbulence**” to “**the amount**” in the sixth sentence of the block quote.

Changed “turbulence” to “turbulence **in the flow of resources**” in the seventh sentence of the block quote.

Chapter 3, Refining Everyday Thinking, tenth paragraph

Changed “the Good, **the Truth**” to “the Good” in the last sentence.

Chapter 3, Refining Deciding Well, third paragraph

Changed “seek, **which is to say that we do not know exactly how to define ‘wealth’**” to “seek” in the last sentence.

Chapter 3, Refining Deciding Well, fourth paragraph, first sentence

“Defining **wealth** as something other than those things that we need to decide well leads us to embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use; that is, into our markets, technologies, legal systems, languages, and cultures. The greatest danger is in public policy. We tend to discover and correct our private mistakes.”

was changed to:

“**From the invariant view of deciding well, we ought to seek what we need to decide well.** Defining **what we ought to seek** as something other than those things that we need to decide well leads us to embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use; that is, into our markets, technologies, legal systems, languages, and cultures.”

Chapter 3, Refining Deciding Well, fifth paragraph

“Just as Taiichi Ohno envisioned a research program based on refining knowledge of producing in batches well, we can envision a *civil* research program for refining **our knowledge of wealth (seeking the Truth about the Good) by refining** our knowledge of deciding well (**seeking the Truth about Wisdom**). **This calls for basing the stories that we use to explain deciding well on the set of all stories that we use to define what we need to live well.¹⁶ We can then refine our beliefs about deciding well by weeding out members of this set.** For example, we can weed out all those stories that consider only our bodies, only our minds, or only our spirits. To think of ourselves as animals, as computers, or as angels, rather than as people (embodied beings who use language to

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

plan and learn from their actions), is certain to embed major mistakes into our networks of knowledge-in-use. We ought to consider our bodies, minds, and spirits.¹⁷”

“¹⁶ *We do this by defining our needs and ends tautologically. Our needs are those things we need to achieve our ends and our ends are those things we achieve by satisfying our needs.* Our beliefs and behaviors **are** evolving at a pace many orders of magnitude faster than the genetic-level programming that underlies our higher-level internal programming. Although we can improve the process by which our genetic programming develops into our higher-level programming, we cannot improve our higher-level internal programming beyond the bounds set by our genetic programming. Therefore, we can safely assume that our fully realized internal programming is fixed. This may not always be the case. A major challenge of our era must be to accumulate the wisdom we will need to meet the challenges that will come with the ability to change our genetic programming.”

was changed to:

“Just as Taiichi Ohno envisioned a **corporate** research program based on refining knowledge of producing in batches well, we can envision a **civil** research program for refining our knowledge of deciding well. **From the invariant view of deciding well, we do so by weeding out all stories that are incompatible with the timeless end of deciding well.** One way that we can do so is to weed out all stories that are not useful to people in all circumstances. For example, we can weed out all stories that concern only our bodies, only our minds, and only our spirits **from the set of theories that we use to define what we need to live well.**¹⁶ To think of ourselves as animals, as computers, or as angels, rather than as people is certain to embed major mistakes into our networks of knowledge-in-use. We ought to consider our bodies, minds, and spirits.¹⁷”

“¹⁶ Our beliefs and behaviors **evolve** at a pace many orders of magnitude faster than the genetic-level programming that underlies our higher-level internal programming. Although we can improve the process by which our genetic programming develops into our higher-level programming, we cannot improve our higher-level internal programming beyond the bounds set by our genetic programming. Therefore, we can safely assume that our fully realized internal programming is fixed. This may not always be the case. A major challenge of our era must be to accumulate the wisdom we will need to meet the challenges that will come with the ability to change our genetic programming.”

Chapter 3, Refining Deciding Well, sixth paragraph, first three sentences

“**We also ought** to weed out all temporal stories from the set of theories we use to explain deciding well. **Hence,** we **ought to** weed out all stories that concern the temporal concept of excellence in means (efficiency). Further, we **ought to** weed out all stories that concern either sustainability or society, and doubly so all stories that concern sustaining a good society.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“Another way we can weed out stories that are incompatible with the timeless end of deciding well is to weed out all temporal stories from the set of stories we use to explain deciding well. For example, we can weed out all stores that concern the temporal concept of excellence in means (efficiency). Further, we can weed out all stories that concern either sustainability or society, and doubly so all stories that concern sustaining a good society.”

Chapter 3, Refining Deciding Well, last paragraph

Changed “from the sets of stories that we use to define what it is to decide well” to “that are incompatible with the timeless end of deciding well” in the first sentence.

Chapter 3, A Crude Look at the Whole, last paragraph, footnote

Changed “econometric” to “statistics-based” in the first sentence.

Changed “what modern economists call Kondratieff waves, business cycles, and speculative bubbles” to “speculative bubbles, business cycles, long-term technological change (“Kondratieff waves”), and very long-term cultural change (“economic ages”)” in the second sentence.

Moved the footnote from the end to the last sentence to the end of the first sentence in the paragraph.

Changes in Version 2009.05.24

Chapter 1, Choosing Frames Well, last two paragraphs

Merged these two paragraphs together.

Chapter 1, The EOQ/RTS Example, title

Demoted the title one level.

Chapter 1, The Need for Timeless Frames, title

Demoted the title one level.

Chapter 1, Temporal versus Timeless Values, ninth paragraph, footnote

“¹¹ The frame here is neither temporal nor timeless, but rather a combination of both. The timeless end of deciding well calls for believing well in frames that range from the short

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

run to the infinitely long run. In Daoist terms, it calls for believing well about steps as well as paths, and paths as well as steps. A journey of a thousand miles starts from under our feet (*Daodejing*, chapter 64).”

was changed to:

“¹¹ The timeless end of deciding well calls for believing well in frames that range from the **very** short run to the infinitely long run. In Daoist terms, it calls for believing well about steps as well as paths, and paths as well as steps. A journey of a thousand miles starts from under our feet (*Daodejing*, chapter 64). **Pursuing the timeless end of deciding well would benefit greatly from the ability to think in a multitude of frames simultaneously. Those of us who lack this ability must rely on the accumulated wisdom of others to help us decide well. We may call this useful accumulated experience culture. For more on this see Stewart, I. and Cohen, J., *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997), chapter 11.**”

Chapter 1, Temporal versus Timeless Values, eleventh paragraph

Changed “**across countless generations of people**” to “**over long periods**” in the seventh sentence.

Chapter 1, Temporal versus Timeless Values, last paragraph

“In summary, **from a temporal frame of deciding well, people base their values on what they currently know. The source of this knowledge lies beyond the temporal process of deciding well. In contrast, from the invariant frame of deciding well, our values emerge from the endless process of deciding well. Over time, we learn that we ought to pursue the timeless end of deciding well (Wisdom), which calls for us to pursue the timeless ends of living well (the Good), believing well (the Truth), and governing ourselves well (Justice).**”¹³”

“¹³ **The difference between a temporal view and the invariant view of deciding well concerns the difference between thinking in terms of results and thinking in terms of processes. From a temporal view, we can never be certain that we ought to pursue the timeless end of deciding well (Wisdom). From the invariant view, we can either pretend to be certain that we ought *not* to pursue Wisdom, or aspire to be wise by seeking to discover whether we ought *not* to pursue Wisdom, which we do by pursuing Wisdom. Over time, we learn to aspire to be wise.**”

was changed to:

“In summary, **values are intellectual tools for helping us choose problems to solve. From a temporal frame of deciding well, people base their values on what they currently know. The source of this knowledge lies beyond the temporal process of deciding well. In contrast, from the invariant frame of deciding well, our values emerge from the**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

invariant process of deciding well. Over time, we learn that we ought to pursue the timeless end of deciding well (Wisdom).

“From a temporal view **of deciding well, timeless values are nothing more than temporal values based on a belief system some people say is true.** In contrast, from the invariant view **of deciding well, timeless values emerge from the invariant process of deciding well.** We can either pretend to be certain that **this process does not exist**, or we can aspire to be wise by seeking to **prove that it does not exist**, which we do by **acting as if it exists**. Over time, we learn to **love Wisdom.**”

Chapter 3, Refining Everyday Thinking, tenth paragraph

Deleted the phrase “**which call to mind the incompleteness theorems of Kurt Gödel,**” from fourth sentence.

Chapter 3, *Learning from Experience*, last paragraph, last sentence

“**The question is whether we will wait for a major catastrophe before making this change.**”

was deleted.

Chapter 4, *Promote Deciding Well, not Stability*, last paragraph

Changed “**Living in a**” to “**A**” in the first sentence.

Changed “**this**” to “**living in such a civilization**” in the last sentence.

Changes in Version 2009.05.30

Preface, sixth paragraph

Changed “**people** (embodied beings who use language to plan and learn from their actions)” to “embodied beings who use language to plan and learn from their actions (**people**)” in the first sentence.

Chapter 1, Choosing Frames Well, first paragraph

Changed “the term” to “**the meaning of** the term” in the last sentence.

Chapter 1, Choosing Frames Well, second paragraph

Changed “the term” to “**the meaning of** the term” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Choosing Frames Well, last paragraph

Changed “the term” to “**the meaning of** the term” in the second sentence.

Changes in Version 2009.06.06

Chapter 1, Temporal versus Timeless Frames, fourth paragraph, third sentence

“**In modern economic terms**, our actions reveal our preferences.”

was appended to the previous sentence and changed to:

“**;** **hence** our actions reveal our preferences.”

Chapter 1, Temporal versus Timeless Values, last paragraph

“**From a temporal view of deciding well, timeless values are nothing more than temporal values based on a belief system some people say is true. In contrast, from the invariant view of deciding well, timeless values emerge from the invariant process of deciding well. We can either pretend to be certain that this process does not exist, or we can aspire to be wise by seeking to prove that it does not exist, which we do by acting as if it exists. Over time, we learn to love Wisdom.**”

was deleted.

Chapter 3, Pursuing the Ring of Truth, first paragraph

“From the invariant frame of deciding well, the endless pursuit of believing well calls for us to pursue all of the timeless factors of deciding well. This is a benefit, not a burden. **It** provides us with a more certain way of testing problems to solve before we attempt to solve them. If a problem is consistent with all of our beliefs about the timeless factors, then it rings true. We can be reasonably certain that we have found a beautiful problem to solve.”

was moved to the first paragraph of the *Beauty as a Guide to Deciding Well* subsection and changed to:

“From the invariant frame of deciding well, the endless pursuit of believing well calls for us to pursue all of the timeless factors of deciding well. This is a benefit, not a burden, **for it** provides us with a more certain way of testing problems to solve before we attempt to solve them. If a problem is consistent with all of our beliefs about the timeless factors, then it rings true. We can be reasonably certain that we have found a beautiful problem to solve.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Beauty as a Guide to Deciding Well*, title

Changed “*Deciding Well*” to “*Believing Well*” in title.

Chapter 3, *Beauty as a Guide to Believing Well*, first paragraph

“Pursuing the timeless end of **deciding** well calls for us to pursue all of the timeless factors of **deciding** well. However, when we try to analyze these various pursuits using analytical **techniques**, we keep returning to our starting point. We quickly learn that we are in a mental hall of mirrors from which analytical **techniques** cannot help us escape.”

was changed to:

“Over time, we learn that trying to find a beautiful problem to solve puts us in a mental hall of mirrors from which analytical tools alone cannot help us escape. As we try to analyze these various pursuits using analytical tools, we keep returning to our starting point. In philosophical terms, we learn that all rational belief systems are nothing more than extended tautologies. Reason alone cannot help us escape these mental halls of mirrors.”

Chapter 3, *Beauty as a Guide to Believing Well*, second paragraph, first sentence

“**T**wentieth-century philosopher John Rawls provides us with a holistic technique that can help us reason our way out of this mental hall of mirrors.”

was changed to:

“**We can escape this mental hall of mirrors by using timeless tools to find temporal ends. For example,** twentieth-century philosopher John Rawls provides us with a holistic technique that can help us reason our way out of this mental hall of mirrors.”

Chapter 3, *Beauty as a Guide to Believing Well*, last paragraph

“**In deciding well, we use intellectual tools to help us find problems to solve. When we use these tools to make major decisions, we ought to compare the results of several tools. The less the tools that we use have in common, the less is the risk that the results contain a common error. Hence, we ought to use only those tools that help us pursue the highest ends that we can imagine, only those tools that help us pursue timeless ends. When all the tools we use to find problems to solve yield the same result, we have found a beautiful problem to solve.**”

was changed to:

“**We can never be sure that our timeless tools help us find the best temporal problems to solve. We can either pretend to be certain that they do or do not help us find the best temporal problems, or aspire to be wise by seeking to disprove that they help us find the**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

best temporal problems to solve, which we do by acting as if they help us find the best temporal problems to solve. Undertaking this research program calls for making a leap of faith. Over time, we learn that we base such leaps of faith upon the ring of Truth.”

Chapter 3, *Beauty as a Guide to Believing Well*, entire subsection

Moved the subsection to the end of the **Pursuing the Ring of Truth** section.

Chapter 3, *The Elephant in the Room*, first paragraph

Changed “grandest of all “ring of Truth” stories” was changed to “most beautiful story that emerges from the universal invariant of deciding well” in the first sentence.

Chapter 3, *Learning from Experience*, fourth paragraph

“The problem here is how to measure what we need to live well, which calls for knowing the Truth about the Good. Plato only aspired to such knowledge. Only a fool would claim to have found it. From a technical view, the problem of measuring services is universal and the problem of measuring quality is impossibly hard.”

was changed to:

“The problem here concerns the modern economic accounting system, which seeks to measure what we currently want rather than what we truly need to live well. From the modern economic view, the problem of measuring the value of services is limited, and the problem of measuring the value of changes in quality is manageable. In contrast, from the invariant view of deciding well, the problem of measuring the value of services is universal, and the problem of measuring the value of changes in quality is impossibly hard.”

Chapter 3, *Learning from Experience*, last paragraph

Changed “national income” was changed to “modern economic” in the fifth sentence.

Changes in Version 2009.06.22

Acknowledgments, fifth paragraph

Changed “needed” was changed to “needed to write the interactive compiler” in the sixth sentence.

Preface, sixth paragraph

Changed “, and that it is true” was changed to “and true” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Choosing Frames Well, first paragraph

“We use structures of related concepts to reduce our sensations of the world to concepts. These structures, which we may call *frames*, determine how we perceive the world. For example, consider some of the many ways in which we can think about what it is to decide well. One way in which we can think about deciding well is as a goal-oriented event or process subject to constraints. These constraints include such factors as time, clarity of mind, the quality of intellectual tools, and the scarce resources to do what we would like to do. From within this frame, the meaning of the term ‘well’ in the phrase ‘deciding well’ concerns excellence in using scarce resources.”

was changed to:

“As embodied beings who use language to plan and learn from their actions (people), we reduce our sensations of the world to concepts that help us survive and thrive. We naturally arrange concepts into structures that help us address what we believe are similar sorts of problems. Over time, we refine these structures using rules for refining these structures. We may call these logically coherent structures for reducing our sensations of the world to concepts *frames*.”

“The frames we use to reduce our sensations to concepts determine how we think about the world. For example, consider some of the many ways in which we can think about what it is to decide well. One way in which we can think about deciding well is as a goal-oriented event or process subject to constraints. These constraints include such factors as time, clarity of mind, the quality of intellectual tools, and the scarce resources to do what we would like to do. From within this frame, the meaning of the term ‘well’ in the phrase ‘deciding well’ concerns excellence in using scarce resources.”

“⁴ We ought not to confuse frames with conceptual frameworks. Frames provide us with a single, logically coherent perspective on the world. In contrast, conceptual frameworks can provide us with many perspectives on the world that may or may not be logically coherent.”

Chapter 1, *The EOQ/RTS Example*, seventh paragraph

Changed “The Toyota strategy for learning” to “Ohno’s strategy for learning” in the first sentence.

Changed “the Toyota system” to “Ohno’s system” in the last sentence.

Chapter 1, *The EOQ/RTS Example*, last paragraph

Changed “this strategy” to “Ohno’s strategy” in the first sentence.

Changed “Toyota production system” to “Ohno’s strategy for learning” in the first sentence of the footnote.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *The Need for Timeless Frames*, first paragraph

Changed “**The Toyota** strategy for learning” to “**Ohno’s** strategy for learning” in the first sentence.

Chapter 1, Temporal versus Timeless Values, third paragraph

Deleted “**(Wealth)**” from the last sentence.

Chapter 1, Temporal versus Timeless Values, seventh paragraph

Changed “**problem of choosing**” to “**usefulness of**” in the first and third sentences (2 occurrences).

Chapter 2, *Chicago Screwdrivers*, last paragraph

Changed “**Toyota production system**” to “**Ohno’s strategy for learning**” in the first sentence.

Chapter 3, *Beauty as a Guide to Deciding Well*, entire section

“From the invariant frame of deciding well, pursuing the timeless end of believing well calls for us to pursue all of the timeless factors of deciding well. **However**, when we try to analyze **these various pursuits using analytical tools**, we **keep returning to our starting point**. We quickly learn that we are in a mental hall of mirrors from which analytical tools **alone** cannot help us escape.”

“**We can escape this mental hall of mirrors by using timeless tools to help us find problems to solve. For example**, twentieth-century philosopher John Rawls provides us with a holistic technique that can help us reason our way out of this **mental hall of mirrors**. He asks us to imagine what we should² choose if we were ignorant of the circumstances of our birth.³ For this imagined original position of ignorance to produce a *completely just* timeless end, we must consider to what timeless end we should want to guide people (**embodied beings who use language to plan and learn from their actions**) if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of what species we will be and into what era we will be born. From behind this veil of ignorance, we should want all people to pursue the timeless end of revering life well.⁴ We pursue this timeless end by deciding well.”

“We can never be sure that **our timeless tools help us find the best temporal problems to solve**. We can either pretend to be certain that **they do not help us find the best temporal problems**, or aspire to be wise by seeking to disprove that **they help us find the best temporal problems to solve**, which we do by acting as if **they help us find the best temporal problems to solve**. Undertaking this research program calls for making a leap of faith. Over time, we learn to base such leaps of faith upon the ring of Truth.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“² Rawls uses a first person conditional statement to determine moral obligation. The grammatically correct term for expressing a first person conditional statement is ‘should.’ To American ears, ‘should’ implies a moral obligation rather than a hypothetical circumstance. Americans may choose to replace the grammatically correct ‘should’ with the idiomatic ‘would.’”

“⁴ For more on revering life well, see Appendix B.”

was changed to:

“From the invariant frame of deciding well, pursuing the timeless end of believing well (the Truth) calls for us to pursue all of the timeless factors of deciding well (the Good, Wisdom, Justice, etc.). This is a benefit, not a burden. It provides us with a more certain way of testing problems before we attempt to solve them. If a problem is consistent with all of our beliefs about the timeless factors of deciding well, then it rings true. We have found a beautiful problem to solve.

“Some analytical philosophers will likely claim that this timeless advice is little more than religious nonsense. From the invariant frame of deciding well, this claim arises from too narrow a concept of what it is to believe well. When we try to analyze the timeless factors of deciding well, we quickly learn that we are in a mental hall of mirrors from which analytical tools cannot help us escape. Concepts are tools that focus our attention on what is important to the task at hand. In doing so, they tend to blind us to what is not important to the task at hand. We naturally overcome the tendency of concepts to blind us by using a variety of frames to make our way in the world. We can use analytical tools to help us find errors in logic, including those that concern moving from one frame to another.² However, we cannot use analytical tools to help us find the best frame for the task at hand. For this we need a means of choosing frames. The invariant frame of deciding well can provide us with such a means. From the invariant frame of deciding well, the best frame is the frame that best helps us pursue the timeless end of deciding well.³”

“Consider how we can use the invariant frame of deciding well to help us choose the best frame for judging how well we govern ourselves. This problem concerns choosing among frames that define justice. Each frame creates a mental hall of mirrors that make it appear that it is the best frame. Twentieth-century philosopher John Rawls provides us with a holistic technique that can help us escape these halls of mirrors. From within each frame we consider, the frame we are in looks to be the best frame. Twentieth-century philosopher John Rawls provides us with a holistic technique that can help us reason our way out of this quandary. He asks us to imagine what we should choose if we were ignorant of the circumstances of our birth.⁴ For this imagined original position of ignorance to produce a *completely just* end, we must consider to what end we should want to guide people if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of what species we will be and into what era we will be born. From behind this veil of ignorance, we should want all people to pursue the timeless end of revering life well.⁵ We pursue this timeless end by deciding well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We can never be certain that **the invariant frame of deciding well is the best frame for choosing frames**. We can either pretend to be certain that **it is or is not the best frame for choosing frames**, or aspire to be wise by seeking to disprove that **it is not the best frame for choosing frames**, which we do by acting as if **it is the best frame for choosing frames**. Undertaking this research program calls for making a leap of faith. Over time, we learn to base such leaps of faith upon the ring of truth.”

“² **When we move from one frame to another, we run the risk of creating logical errors. Consider again the tropical rain example in the first section. From a frame in which rain is the source of water that makes the ground wet, the statement that because the ground is wet it must have rained is true by definition. However, when we move to a frame in which rain is liquid water that falls from clouds in the sky, then this statement becomes the logical fallacy known as confirming the consequent. Just as the rules of perspective do not work for a cubist painting, the rules of logic do not work across frames.**”

“³ **As we saw in the first section, the problem of defining excellence in choosing frames is infinitely deep. In defining the concept of excellence in choosing frames, we must choose a frame. To choose this frame, we must choose a frame. To choose this frame, we must choose a frame. And so on to infinity. The invariant means of addressing this problem is also infinitely deep. The best frame for choosing frames is the frame that best helps us decide well. The best frame for choosing this frame is the frame that best helps us pursue the timeless end of deciding well. The best frame for choosing this frame is the frame that best helps us pursue the timeless end of deciding well. And so on to infinity. Regardless of how many times we repeat this cycle, the best frame for choosing frames is the frame that best helps us pursue the timeless end of deciding well.**”

“⁴ Rawls, John, *A Theory of Justice* (Cambridge, MA: The Belknap Press of Harvard University, 1971), chapter III.”

“⁵ **This argument implies that the timeless end of revering life well is a timeless factor of deciding well. We may conceive of this timeless end as a good life for all living beings (the Good for all living beings). We may also conceive of this timeless end as linking or re-linking with something infinitely greater than ourselves for eternity (Bliss). For more on revering life well, see Appendix B.**”

Appendix A, Producing Ever More Leanly, first paragraph

Changed “Toyota’s approach” to “Toyota’s *kaizen* approach” in the last sentence.

Appendix B, Experiencing the Mysterious, first paragraph

Changed “**not only to create but also to destroy**” to “to destroy **as well as create**” in the first sentence.

Appendix B, A Common Timeless End, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “ring of Truth” to “ring of truth” in the last sentence.

Changes in Version 2009.06.26

Preface, fourth paragraph

Changed “**greater** whole” was changed to “**infinite** whole” in the fourth sentence.

Chapter 1, Choosing Frames Well, last paragraph, last three sentences

“However, we can address it by making it part of the **timeless** problem of deciding well. **What this timeless problem is and how we address it well are the subject of this work. We start with a discussion of the difference between temporal versus timeless frames.**”

were changed to:

“However, we can address it by making it part of the problem of deciding well.”

Chapter 1, Temporal versus Timeless Frames, title

Changed title to “**Useful Frames.**”

Chapter 1, Useful Frames, first paragraph, first sentence

Inserted the sentence:

“**Addressing the problem of deciding well calls for understanding what makes frames useful in deciding well.**”

Chapter 1, Useful Frames, second paragraph, footnote

“Note that what we deem to be a matter of efficiency or effectiveness changes with the size of the temporal problem **that we choose, or that is chosen for us.** Hence, **forgetting to choose** a temporal problem scale can cause great confusion. For example, a problem that a chief executive may view as an efficiency problem, a supervisor may view as an effectiveness problem. **In planning terms, a problem that a chief executive may view as a tactical problem, a supervisor may view as a strategic problem.**”

was changed to:

“Note that what we deem to be a matter of efficiency or effectiveness changes with the size of the temporal problem **chosen.** Hence, **speaking of efficiency without specifying a** temporal problem scale can cause great confusion. For example, a problem that a chief

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

executive may view as an efficiency (**tactical**) problem, a supervisor may view as an effectiveness (**strategic**) problem.”

Chapter 1, Useful Frames, last paragraph

Changed “can **never** avoid” was changed to “cannot avoid” in the second sentence.

Chapter 1, *The Need for Timeless Frames*, last paragraph

Changed “**temporal versus timeless** values” was changed to “**useful** values” in the last sentence.

Chapter 1, Temporal versus Timeless Values, title

Changed title to “**Useful Values.**”

Chapter 1, Useful Values, first paragraph

Changed “**The Toyota production system**” was changed to “**Ohno’s strategy for learning**” in the first sentence.

Changed “**temporal**” was changed to “**temporal**” in the second sentence.

Changed “**timeless**” was changed to “**timeless**” in the third sentence.

Chapter 1, Useful Values, second paragraph, second to last sentence

“**People who make this mistake do so because they have** fallen into the habit of using the terms ‘theism,’ ‘religion,’ ‘faith’ as synonyms for the zealous pursuit of linking or re-linking with the divine.”

was moved to the end of the paragraph and changed to:

“**We ought never to** fall into the habit of using the terms ‘theism,’ ‘religion,’ ‘faith’ as synonyms for the zealous pursuit of linking or re-linking with the divine.”

Appendix A, Folding in Processes, second paragraph

Changed “**decision alternatives**” was changed to “**choices**” in all (2 occurrences).

Appendix A, Folding in Processes, last paragraph

Changed “**decision alternatives**” was changed to “**choices**” in the last sentence.

Appendix B, *Heroic Death*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Deleted “**which is also the timeless view of science,**” from the third sentence.

Changes in Version 2009.06.30

Acknowledgments, first paragraph

Changed “**a dozen**” was changed to “**some of the**” in the last sentence.

Acknowledgments, second paragraph

“The first **three** were Pomona College professors **Frederick Sontag, James Likens, and Gordon Douglas**. Fred pushed me never to stop becoming more than I am. For a third of a century he has been extremely generous with his most precious resource, his time. **Jim often mentioned** that social scientists tell many stories about this or that complex phenomenon. **He also mentioned** that economists do not do dynamics well. My last semester in college, I took an independent study course in human capital theory from Gordon. This course exposed me to methodology, a subject so dangerous to the **emotional** health of economists that George Stigler once joked that economists ought to leave it to the end of their careers. I could not get my mind around how a theory could be both useful (in predicting what will happen in markets) and foolish (in explaining what career to choose). The harder I tried to solve this infinitely large problem, the more distraught I became. Despite the threat of failing to graduate, I could not write the required term paper. I finally gave Gordon his paper, “Wealth in the Information Age, A Humanistic Approach to Economics,” seventeen years late.”

was changed to:

“The first four were Pomona College professors. Frederick Sontag pushed me never to stop becoming more than I am. For a third of a century he has been extremely generous with his most precious resource, his time. **Jay Atlas exposed me to the pragmatic philosophies of W. V. O. Quine and Morton White. James Likens told me** that social scientists tell many stories about this or that complex phenomenon, **and** that economists **don’t** do dynamics well. **He also introduced me to Thomas Kuhn’s philosophy of science**. My last semester in college, I took an independent study course in human capital theory from **Gordon Douglas**. This course exposed me to economic methodology, a subject so dangerous to the **mental** health of economists that George Stigler once joked that economists ought to leave it to the end of their careers. I could not get my mind around how a theory could be both useful (in predicting what will happen in markets) and foolish (in explaining what career to choose). The harder I tried to solve this infinitely large problem, the more distraught I became. Despite the threat of failing to graduate, I could not write the required term paper. I finally gave Gordon his paper, “Wealth in the Information Age, A Humanistic Approach to Economics,” seventeen years late.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Acknowledgments, fifth paragraph

Changed “**the** interactive compiler” was changed to “**an** interactive compiler **based on this idea**” in the last sentence.

Changed “**computer** language” was changed to “language” in the last sentence.

Preface, third paragraph

Changed “**modern thinkers**” was changed to “**people**” in the first sentence.

Preface, sixth paragraph

Changed “**solving** the problem” was changed to “**attempting to solve** the problem **well**” in the second sentence of the block quote.

Chapter 1, Choosing Frames Well, second paragraph

Changed “**the** scarce resources **to do what we would like to do**” was changed to “**what modern economists call** scarce resources” in the last sentence.

Changed “**scarce** resources” was changed to “resources” in the last sentence.

Chapter 1, *The EOQ/RTS Example*, third paragraph

Changed “share ideas **about learning**” was changed to “share **their** ideas” in the last sentence.

Chapter 1, Useful Values, ninth paragraph

Changed “**wisdom**” was changed to “**experience**” in the fifth sentence of the footnote.

Changed “**accumulated experience**” was changed to “**knowledge**” in the sixth sentence of the footnote.

Chapter 1, Useful Values, ninth paragraph, footnote, last four sentences

“Pursuing the timeless end of deciding well would benefit greatly from the ability to think in **a multitude of** frames simultaneously. **Those of us who lack this ability must rely on the accumulated experience of others to help us decide well. We may call this useful knowledge culture.** For **more on this** see Stewart, I. and Cohen, J., *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997), **chapter 11.**”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Pursuing the timeless end of deciding well would benefit greatly from the ability to think in **many** frames simultaneously. For a **thought-provoking and humorous explanation of the evolution of this ability**, see Stewart, I. and Cohen, J., *Fragments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997). **From the invariant view of deciding well, to the extent we lack the ability to think in many frames simultaneously, we must rely on heuristic stories built of concepts that do not fit together into a coherent whole. Over time, we learn to replace ever more of these incoherent stories with coherent stories. As we do so, our need to think in many frames simultaneously grows. Over time, our ability to satisfy this need also grows. As we shall see, our ability to think *rationally* and our ability to think *beautifully* co-evolve.**”

Chapter 1, Useful Values, eleventh paragraph, footnote, last sentence

“The **gold standard for useful knowledge is the** mathematical representation of the unchanging elements and relations that underlie all sensations.”

was changed to:

“The mathematical representation of the unchanging elements and relations that underlie all sensations **is the gold standard of useful knowledge.**”

Chapter 2, Chicago Screwdrivers, second paragraph, first sentence

“**We** spend **most of our waking hours** using temporal tools **to solve temporal problems.**”

was changed to:

“**Most of us** spend **more time** using temporal tools **than timeless tools.**”

Chapter 2, Trust, second paragraph

Changed “**scarce** resources” was changed to “**material** resources” in the fourth sentence.

Appendix A, Smoothing Flows, last paragraph

Changed “**scarce** resources” was changed to “resources” in the first sentence.

Appendix A, Inducing Knowledge, third paragraph

Changed “**scarce** resources” was changed to “resources” in the last sentence.

Appendix A, Transparency, entire section

“**Transparency**

Stressing a complex system by removing scarce resources creates small problems.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Techniques for finding these problems range from statistical quality control methods to the Socratic *five whys*. By asking “Why?” at least five times, a line worker may discover that the real cause of a labor efficiency problem in final assembly is an affair between a purchasing agent and an adhesive sales representative. All of these techniques benefit from making the system as transparent as possible.

“Managers also find problems to solve. Kanban, low stock level markers, color-coded stock areas, and production statistic charts near each work center help them to do so. Many plants also employ a lamp (*andon*) system to help managers quickly assess stress from a distance. Each work center has an overhead status light. A green light shows that all is going well; a yellow light warns that the worker is struggling to keep up; and a red light signals the need for immediate help. All green lights shows that the process is not being stressed enough to induce knowledge. Too many yellow lights or a single red light signals too much stress. **Increasing transparency by these and other means makes it easier for managers to find problems to solve.**”

was changed to:

“**Inducing knowledge well calls for stressing the system just enough to create a manageable number of problems that create uneven flow.** Many plants employ a lamp (*andon*) system to help managers quickly assess stress from a distance. Each work center has an overhead status light. A green light shows that all is going well; a yellow light warns that the worker is struggling to keep up; and a red light signals the need for immediate help. All green lights shows that the process is not being stressed enough to induce knowledge **well**. Too many yellow lights or a single red light signals too much stress **to induce knowledge well.**”

Appendix B, Experiencing the Mysterious, first paragraph, first two sentences

“Pursuing the timeless end of deciding well calls for us to **destroy as well as** create mental models of the world. **It is our lot in life to** need faith in mental creations **in order to** live, but **to need** mystical oneness **in order to** live ever more wisely.”

was changed to:

“Pursuing the timeless end of deciding well calls for us to **live well in the world as it currently is. For this, we need faith in our current mental models of the world. Pursuing the timeless end of deciding well also calls for us to** create **ever better** models of the world. For this, we need mystical oneness.”

Appendix B, Experiencing the Mysterious, second paragraph

Changed “However,” was changed to “However, **from the temporal view of modern economics,**” in the last sentence.

Appendix B, *Heroic Death*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“People who seek to decide well temper the call for sacrifice with wisdom. Too small a willingness to risk ourselves for the sake of others is cowardly. Too great a willingness to risk ourselves for others is foolhardy or self-destructive. Only the wise amount of willingness is truly heroic.¹⁰”

¹⁰ Aristotle, *Nicomachean Ethics*, book 2, chapter 2.”

was changed to:

“From the invariant view of deciding well, deciding well calls for tempering sacrifice with wisdom.¹⁰”

¹⁰ From an Aristotelian view (*Nicomachean Ethics*, book 2, chapter 2), too small a willingness to risk ourselves for the sake of others is cowardly, and too great a willingness to risk ourselves for others is foolhardy or self-destructive. Only the wise amount is truly heroic.”

Appendix B, *Heroic Death*, third paragraph

Changed “From an invariant view of deciding well, those” was changed to “Those” in the last sentence.

Merged second and third paragraphs.

Appendix B, *Heroic Death*, last paragraph

“How do we best protect ourselves from such beliefs? Do we learn to ignore our need for mystical oneness, or do we learn to distinguish between sacred and profane means of satisfying our need for mystical oneness? From the invariant view of deciding well, it is better to learn to distinguish between sacred and profane means of satisfying our need for mystical oneness. Sacred means are those that are wise, good, true, just, and beautiful. Profane means are those that are foolish, bad, false, unjust, or ugly.”

was changed to:

“How do we best protect ourselves from such beliefs? Do we learn to ignore our need for mystical oneness, or do we learn to distinguish between wise and foolish means of satisfying our need for mystical oneness? Einstein would have us do the latter.”

Appendix B, *Einstein's Twin Warnings*, first paragraph, last sentence

Inserted the following:

“In the words of Albert Einstein:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Now, even though the realms of religion and science in themselves are clearly marked off from each other, nevertheless there exist between the two strong reciprocal relationships and dependencies. Though religion may be that which determines the goal, it has, nevertheless, learned from science, in the broadest sense, what means will contribute to the attainment of the goals it has set up. But science can only be created by those who are thoroughly imbued with the aspiration toward truth and understanding. This source of feeling, however, springs from the sphere of religion. To this there also belongs the faith in the possibility that the regulations valid for the world of existence are rational, that is, comprehensible to reason. I cannot conceive of a genuine scientist without that profound faith. The situation may be expressed by an image: science without religion is lame, religion without science is blind.”¹²”

“¹² Albert Einstein, paper prepared for the first meeting of the Conference on Science, Philosophy, and Religion in Their Relation to the Democratic Way of Life, New York City, September 9–11, 1940, reprinted in *Ideas and Opinions* (New York, The Modern Library, 1994).”

Changes in Version 2009.07.14

The following changes were the result of an edit by Patrika Vaughn.

Preface, sixth paragraph

Changed “embodied beings who use language to plan and learn from their actions (people)” to “people (embodied beings who use language to plan and learn from their actions)” in the first sentence.

Chapter 1, Choosing Frames Well, first paragraph

Changed “embodied beings who use language to plan and learn from their actions (people)” to “people (embodied beings who use language to plan and learn from their actions)” in the first sentence.

Chapter 1, *The EOQ/RTS Example*, first paragraph, end

Added the sentences:

“The first is the well-known economic order quantity model. The second is the less well-known rapid tool setting model.”

Chapter 1, *The EOQ/RTS Example*, sixth paragraph

Changed “early postwar years” to “late 1940s” in the second sentence.

Changed “cars and trucks” to “trucks” in the third and fourth sentences (2 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Useful Values, second to last paragraph, footnote

“¹³ To perfect cooperation in believing well, the knowledge we create must be useful to all intelligent life. To be so, its form must be the universal language of mathematics, and its substance must concern the unchanging elements and relations that underlie all sensations. The mathematical representation of the unchanging elements and relations that underlie all sensations is the gold standard of useful knowledge.”

was deleted.

Changes in Version 2009.07.16

Chapter 2, *Chicago Screwdrivers*, first paragraph

Added the sentence:

“Just as we ought never use hammers to drive in screws, we ought never to use temporal tools that are not also timeless tools to find problems to solve.”

Chapter 2, *Chicago Screwdrivers*, second paragraph

“Most of us spend more time using temporal tools than timeless tools. To people with hammers in their hands, everything tends to look like a nail. *Just as we ought never to use a hammer to drive in screws, we ought never to use temporal tools to find problems to solve.*”

was deleted.

Chapter 3, Refining Everyday Thinking, third paragraph, footnote

“This neat relation only holds for problems that we can represent by a single decision tree model. Better predictions help us improve our assessments of uncertain events. Better explanations help us improve the decision structure. Hence, the relation only holds for deciding well, not for thinking about deciding well, thinking about thinking about deciding well, and so on.”

was changed to:

“One way that we can think about the truth of this claim is to consider whether it is theoretically possible to reduce any decision-making situation to a decision tree model. From within this type of model, better predictions help us improve our assessments of uncertain events and better explanations help us improve the decision structure. This is not to say that reducing all decision-making situations to decision tree models would be wise. A generalized decision tree model would not only be infinitely large, but also

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

insanely complex. It would need to capture how the decision-maker's actions affect others and how other's reactions affect the decision-maker. It would also need to capture how the decision-maker's preferences might change with experience, especially those preferences that concern what modern economists call externalities. Regrettably, applying simple decision rules universally is only part of the answer to coping with such overwhelming complexity. As we shall see in the next section, an approach in which governments use simple rules to set the bounds of just action combined with individuals using their judgment to act wisely within these bounds appears to be the best approach for pursuing happiness (the Good) ever more wisely.”

Changes in Version 2009.07.25

Chapter 1, Choosing Frames Well, first paragraph

Changed “these” to “the resulting” in the last sentence.

Chapter 1, Choosing Frames Well, first paragraph, footnote

“We ought not to confuse frames with conceptual frameworks. Frames provide us with a single, logically coherent view of the world. In contrast, conceptual frameworks can provide us with many views on the world that may or may not be logically coherent.”

was changed to:

“We ought not to confuse frames with unrefined structures of concepts, which we may call conceptual frameworks. Frames provide us with a single, logically coherent view of the world. To prevent logical mistakes known as fallacies of ambiguity, frames do not contain terms that refer to more than one concept. In contrast, conceptual frameworks may provide us with many views on the world that may or may not be logically coherent. To allow the creation of heuristic conceptual constructions, conceptual frameworks may contain terms that refer to more than one concept. As we shall see, frames are to science what conceptual frameworks are to everyday thinking.”

Chapter 1, *The Need for Timeless Values*, last paragraph

Changed “useful values” back to “temporal versus timeless values” in the last sentence.

Chapter 1, Useful Values, title

Changed “Useful” back to “Temporal versus Timeless” in the title.

Chapter 2, The Need for Timeless Science, first paragraph

Changed “this science” to “this concept of science” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, The Need for Timeless Science, first paragraph, second footnote

“There will likely be some people who believe that this call to change the conceptual framework of economics confirms Karl Marx’s belief that the predominant mode of production determines the prevailing conceptual framework. Although there is some truth in this belief, it tells less than half the story. At least some of the new conceptual framework must be in place before a new mode of production can become dominant. A mode of production and the concepts that best describe it co-evolve.”

was moved to the end of the last sentence and changed to:

“From the timeless view of trading well, the knowledge revolution is the transition from the geographical expansion of trade in non-knowledge products to the geographical and temporal expansion of trade of non-knowledge and knowledge products, including moral obligations. This is but one of many ways that we can describe this revolution. From the timeless liberal view, it is the synthesis of the classical liberal thesis and the modern liberal antithesis. From the timeless dialectical view, it is the synthesis of the dualist thesis and the materialist antithesis. All of these explanations focus our attention on some aspects of the knowledge revolution by blinding us to other aspects. Rather than putting forth one or more of these partial explanations of this phase transition in public affairs, this work puts forth a set of tools for refining the Truth.”

Chapter 3, Refining Everyday Thinking, eleventh paragraph

Changed “view of science” to “view” in the third sentence.

Chapter 3, Refining Everyday Thinking, twelfth paragraph

Changed “view of science” to “view” in the first sentence.

Changed “We” to “To carve nature at its joints, we” in the fourth sentence.

Chapter 3, Refining Everyday Thinking, last paragraph

“From the modern view of believing well, all of the stories that we might use to group fields are the products of human intelligence. As such, we can never be certain that any one is better than the others. In contrast, from the invariant view of deciding well, we aspire to be wise by seeking to disprove the story that appears to be most beautiful, the story that appears most likely to carve nature at its joints, by acting as if the story is true beyond all doubt.”

was changed to:

“Temporal views tend to blind us not only to the existence of the timeless end of believing well, but also to its form. In contrast, from the invariant view of deciding well, the form of the timeless end of believing well is a set of temporal stories and a set of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

timeless stories consisting of at least one story for each of the timeless factors of deciding well. We use the set of temporal stories to help us solve temporal problems and the set of timeless stories to help us find better problems to solve. Einstein tells us our stories ought to be as simple as possible, but not simpler. Similarly, our sets of stories ought to be as small as possible, but not smaller.”

“We ought not confuse the timeless end of believing well and the ultimate end of believing well. to confuse the timeless end of believing well with the ultimate end of believing well. The timeless end of believing well concerns the process of pursuing the timeless end of believing well”

Chapter 3, Refining Deciding Well, fifth paragraph, second and third sentences

“From the invariant view of deciding well, we do so by weeding out all stories that are incompatible with the timeless end of deciding well. One way that we can do so is to weed out all stories that are not useful to people in all circumstances.”

was changed to:

“One way that we can refine this knowledge is to weed out all stories that are not useful to people in all circumstances.”

Chapter 3, Refining Deciding Well, sixth paragraph

Changed “weed out stories that are incompatible with the timeless end of deciding well” to “refine our knowledge of deciding well” in the first sentence.

Appendix A, Less is More, last paragraph

Changed “these networks” to “these networks, which span our nervous systems, our symbolic systems, our organizational systems, and our technological systems” in the first sentence.

Changes in Version 2009.07.31

Preface, sixth paragraph

Changed “an academic view” to “a scientific view” in the first sentence.

Chapter 1, Choosing Frames Well, first paragraph, footnote, last three sentences

“In contrast, conceptual frameworks may provide us with many views on the world that may or may not be logically coherent. To allow the creation of heuristic conceptual constructions, conceptual frameworks may contain terms that refer to more than one

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

concept. As we shall see, **frames are to science what** conceptual frameworks are to everyday thinking.”

was changed to:

“In contrast, conceptual frameworks may contain terms that refer to more than one concept. **This ambiguity allows the creation of useful models of reality that are not supported by reason.** As we shall see, **the endless process of refining everyday thinking includes replacing ambiguous terms with unambiguous terms, thereby replacing irrational heuristic models with intuitive knowledge of how frames fit together into an apparently coherent whole.** For now, we may simply say that conceptual frameworks are to everyday thinking **what frames are to science.**”

Chapter 1, Useful Frames, first paragraph, footnote

Changed “**are inherently**” to “**may be construed as being**” in the second sentence.

Chapter 1, Temporal versus Timeless Values, fourth paragraph

Changed “**instances of** experience” to “experience” in the second sentence.

Chapter 1, Temporal versus Timeless Values, ninth paragraph, footnote, last four sentences

“**From the invariant view of deciding well, to the extent we lack the ability to think in many frames simultaneously, we must rely on heuristic stories built of concepts that do not fit together into a coherent whole. Over time, we learn to replace ever more of these incoherent stories with coherent stories. As we do so, our need to think in many frames simultaneously grows. Over time, our ability to satisfy this need also grows. As we shall see, our ability to think *rationally* and our ability to think *beautifully* co-evolve.**”

were deleted.

Chapter 1, Temporal versus Timeless Values, second to last paragraph

Changed “the moral rule” to “the **universal** moral rule” in the second to last sentence.

Chapter 2, *Three Common Mistakes*, last paragraph

“The third mistake is the belief that competition is the opposite of cooperation. When excellence calls for cooperation, promoting competition tends to promote cooperation. **Shoppers in the Soviet Union wasted billions of hours standing in lines. Many purchases involved** standing in line three times: once to select an item, a second **time** to pay for it, and a third to collect it. **Soviet shoppers endured this because they had no choice.** In contrast, competition **caused** early twentieth-century American merchants to invent stores in which shoppers cooperate with merchants by collecting the items they want to

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

buy. Such self-service stores save shoppers time and money. Some merchants have recently taken this one step further by allowing customers to pay for their items in self-checkout lines.”

was changed to:

“The third mistake is the belief that competition is the opposite of cooperation. When excellence calls for cooperation, promoting competition tends to promote cooperation. For example, shoppers in the Soviet Union wasted billions of hours standing in lines, many standing in line three times for the same purchase: once to select an item, a second to pay for it, and a third to collect it. In contrast, competition prompted early twentieth-century American merchants to invent stores in which shoppers cooperate with merchants by collecting the items they want to buy. Such self-service stores save shoppers time and money. In recent years, some merchants have taken this a step further by allowing customers to pay for their items in self-checkout lines.”

Chapter 3, *Beauty as a Guide to Believing Well*, second paragraph

“Some analytical philosophers will likely claim that this timeless advice is little more than religious nonsense. From the invariant frame of deciding well, this claim arises from too narrow a concept of what it is to believe well. When we try to analyze the timeless factors of deciding well, we quickly learn that we are in a mental hall of mirrors from which analytical tools cannot help us escape. This mental hall of mirrors emerges from the way we reduce our sense experiences to concepts. Concepts are tools that focus our attention on what is important to the task at hand. In doing so, they tend to blind us to what is not important to the task at hand. We naturally overcome the tendency of concepts to blind us using a variety of frames to make our way in the world. We can use analytical tools to help us find errors in logic, including those that concern moving from one frame to another.² However, we cannot use analytical tools to help us find the best frame for the task at hand. For this we need a means of choosing frames. The invariant frame of deciding well can provide us with such a means. From the invariant frame of deciding well, the best frame is the frame that best helps us pursue the timeless end of deciding well.³”

“² When we move from one frame to another, we run the risk of creating logical errors. Consider again the tropical rain example in the first section. From a frame in which rain is the source of water that makes the ground wet, the statement that because the ground is wet it must have rained is true by definition. However, when we move to a frame in which rain is liquid water that falls from clouds in the sky, then this statement becomes the logical fallacy known as confirming the consequent. Just as the rules of perspective do not work for a cubist painting, the rules of logic do not work across frames.”

“³ As we saw in the first section, the problem of defining excellence in choosing frames is infinitely deep. In defining the concept of excellence in choosing frames, we must choose a frame. To choose this frame, we must choose a frame. To choose this frame, we must choose a frame. And so on to infinity. The invariant means of addressing this

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

problem is also infinitely deep. The best frame for choosing frames is the frame that best helps us decide well. The best frame for choosing this frame is the frame that best helps us pursue the timeless end of deciding well. The best frame for choosing this frame is the frame that best helps us pursue the timeless end of deciding well. And so on to infinity. Regardless of how many times we repeat this cycle, the best frame for choosing frames is the frame that best helps us pursue the timeless end of deciding well.”

was reduced to a footnote to the last sentence of the first paragraph:

“**To people who believe that analytical tools are the only legitimate tools for believing well**, this timeless advice is little more than religious nonsense. **They understand that** the problem of defining excellence in choosing frames is infinitely deep. In defining the concept of excellence in choosing frames, we must choose a frame. To choose this frame, we must choose a frame. To choose this frame, we must choose a frame. And so on to infinity. **They fail to understand that** the invariant means of addressing this problem is also infinitely deep. The best frame for choosing frames is the frame that best helps us decide well. The best frame for choosing this frame is the frame that best helps us pursue the timeless end of deciding well. The best frame for choosing this frame is the frame that best helps us pursue the timeless end of deciding well. And so on to infinity. Regardless of how many times we repeat this cycle, the best frame for choosing frames is the frame that best helps us pursue the timeless end of deciding well.”

Chapter 3, *Beauty as a Guide to Believing Well*, new second paragraph, second and third sentences

“**This problem concerns choosing among frames that define justice**. From within each frame we consider, the frame we are in looks to be the best frame.”

were changed to:

“From within each frame we consider, the frame we are in looks to be the best frame. **We find ourselves in a mental hall of mirrors from which analytical techniques cannot help us escape.**”

Chapter 3, *Beauty as a Guide to Deciding Well*, new second paragraph

Changed “veil” to “**timeless** veil” in the second to last sentence.

Chapter 3, *Beauty as a Guide to Deciding Well*, last paragraph

Changed “**choosing frames**” to “**finding problems to solve**” in all (4 occurrences).

Appendix A, *Inducing Knowledge*, fourth paragraph

Changed “**general effects** are” to “general effects **include**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2009.08.31

Preface, sixth paragraph

Deleted “(embodied beings who use language to plan and learn from their actions)” from the first sentence.

Changed “true (useful)” to “useful in pursuing the timeless end of deciding well” in all (2 occurrences).

Preface, eighth paragraph

Changed “ring of truth” to “ring of Truth” in the last sentence.

Chapter 1, Choosing Frames Well, first paragraph, first sentence

Replaced “(embodied beings whose language to plan and learn from their actions)” with the following footnote:

⁴ The term ‘people’ in this work refers to the concept of “embodied beings who use language to plan and learn from their actions.” This timeless concept is not meant to imply the existence of non-human beings who plan and learn from their actions. Speculation about the existence of such beings is beyond the scope of this work.”

Chapter 1, Choosing Frames Well, second paragraph

“The frames we use to reduce our sensations to concepts determine how we think about the world. For example, consider some of the many ways in which we can think about what it is to decide well. One way in which we can think about deciding well is as a goal-oriented event or process subject to constraints. These constraints include such factors as time, clarity of mind, the quality of intellectual tools, and what modern economists call scarce resources. From within this frame, the meaning of the term ‘well’ in the phrase ‘deciding well’ concerns excellence in using resources.”

was changed to:

“The frames we use to reduce our sensations to concepts affects how we think about the world. Consider some of the many ways in which we can think about what it is to decide well. These constraints include scarcity of such factors as time, clarity of mind, the quality of intellectual tools, and material resources. One way in which we can think about deciding well is to think about the way we overcome constraints in pursuit of our goals. From within this frame, the meaning of the term ‘well’ in the phrase ‘deciding well’ concerns excellence in using resources.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Useful Frames, first paragraph, footnote

“In his book *Ten Philosophical Mistakes* (New York: Macmillan, 1985, p. 137), Mortimer Adler distinguishes between temporal and normative ends. Because all ends may be construed as being normative, using ‘normative’ in this context is potentially confusing. Replacing ‘normative’ with ‘timeless’ avoids this problem.”

was changed to:

“In his book *Ten Philosophical Mistakes* (New York: Macmillan, 1985, p. 137), Mortimer Adler uses the term ‘normative’ rather than ‘timeless’ to express this concept of an end unbounded in time. The term ‘normative’ emphasizes that we owe it to ourselves (ought) to pursue what is truly good for us. As we shall see, the term ‘timeless’ emphasizes the self-similar, universal, and unvarying nature of the process of pursuing what is truly good for us.”

Chapter 1, Useful Frames, last two paragraphs

“We can see this difference in formal decision-making. From a temporal frame, a formal decision *event* consists of (1) formulating alternatives; (2) evaluating alternatives; (3) choosing an alternative; and (4) implementing the chosen alternative. To decide well is to decide perfectly; hence our actions reveal our preferences. In contrast, from a timeless frame, a formal decision *process* is the endlessly repeating cycle of (1) finding a temporal problem to solve that appears to be in line with the timeless end of the process; (2) formulating alternative solutions to the chosen problem; (3) evaluating these alternatives; (4) choosing an alternative; (5) implementing the chosen alternative; and (6) learning from the experience. To decide well is *not* to decide perfectly. We make mistakes. We learn from our mistakes. We learn to decide ever more wisely.

“From a timeless frame of deciding well, to decide well is to decide ever more wisely, not to decide perfectly. Given our limited knowledge relative to the infinitely large problem we face, we cannot avoid making mistakes. When we make mistakes, we embed new mistakes into, or reinforce existing mistakes in, our networks of knowledge-in-use; that is, into our markets, technologies, legal systems, languages, scientific theories, and cultures. The dot-com bubble, household lead paint, the Versailles Treaty, the concept of wealth as precious metal coins and bullion, the Ptolemaic theory of the solar system, and countless forms of conspicuous consumption spring to mind. We muddle through a tangle of past mistakes.”

were changed to:

“We can see this difference in formal decision-making. From a temporal frame, a formal decision *event* consists of (1) formulating alternatives; (2) evaluating alternatives; (3) choosing an alternative; and (4) implementing the chosen alternative. To decide well is to decide perfectly. In contrast, from a timeless frame, a formal decision *process* is the endlessly repeating cycle of (1) finding a temporal problem to solve that appears to be in

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

line with the timeless end of the process; (2) formulating alternative solutions to the chosen problem; (3) evaluating these alternatives; (4) choosing an alternative; (5) implementing the chosen alternative; and (6) learning from the experience. To decide well is *not* to decide perfectly. Given our limited knowledge relative to the infinitely large problem we face, we cannot avoid making mistakes. When we make mistakes, we embed new mistakes into, or reinforce existing mistakes in, our networks of knowledge-in-use; that is, into our markets, technologies, legal systems, languages, scientific theories, and cultures. The dot-com bubble, household lead paint, the Versailles Treaty, the concept of wealth as precious metal coins and bullion, the Ptolemaic theory of the solar system, and countless forms of conspicuous consumption spring to mind. We muddle through a tangle of past mistakes. **We learn from our mistakes. We learn to decide ever more wisely.**”

Chapter 1, Temporal versus Timeless Values, second to last paragraph

Changed “long periods **of time**” to “long periods” in the second to last sentence.

Chapter 3, *Beauty as a Guide to Believing Well*, last paragraph

Changed “ring of **truth**” to “ring of **Truth**” in the last sentence.

Chapter 3, Refining Everyday Thinking, fourth to last paragraph

Added the section heading: “*Pursuing the Truth Wisely.*”

Chapter 3, Refining Everyday Thinking, last paragraph

“**Temporal** views tend to blind us not only to the existence of the timeless end of believing well, but also to its form. **In contrast**, from the invariant view of deciding well, the form of **the** timeless end **of believing well** is a set of temporal stories **and a set of timeless stories consisting of at least one story for each of the timeless factors of deciding well.** We use the set of temporal stories to help us solve temporal problems and the set of timeless stories to help us find better problems to solve. Einstein tells us our stories ought to be as simple as possible, but not simpler. **Similarly, our** sets of stories ought to be as small as possible, but not smaller.”

was changed to:

“***The Truth about Wisdom***”

The modern view of believing well tends to blind us not only to the existence of the timeless end of believing well but also to its form. **Thinking deeply about timeless ends** calls for us to leave behind the familiar world of temporal affairs. **Without these familiar references, we are like sailors beyond landfall.** Fortunately, we can use more general versions of two mathematical concepts to help us navigate these potentially maddening seas.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the frame of mathematics, there is a set of numbers that resembles the set of timeless factors of deciding well. This is the set of *transcendental recursive* numbers. These numbers are transcendental in that they are not algebraic, which is to say that they are not the solution of any integer polynomial. They are recursive in that they are the solution of one of at least one recursive process, which is to say they are the result of at least one endlessly repeating cycle of steps in which the result of one cycle becomes the basis for the next cycle.

“From the invariant frame of deciding well, we can imagine a set of transcendental recursive *objects* that corresponds to the more narrow mathematical set of transcendental recursive *numbers*. The members of this set of objects are transcendental in that they are objects that we can define but can never know completely. They are recursive in that we can *theoretically* know them by means of at least one recursive process.

“The mathematical constant π is a transcendental recursive object. It is transcendental in that we can define it but can never know it completely. It is recursive in that we can theoretically know it by means of a recursive process. Similarly, the timeless end of believing well (the Truth) is a transcendental recursive object. It is transcendental in that we can define it but can never know it completely. It is recursive in that we can theoretically know it by means of the recursive process of deciding well.

“We can think of the recursive processes by which we come to know ever more about transcendent recursive objects as having three elements. These elements are the recursive process itself, the *eternal end* of the recursive process, and the *timeless end* of the recursive process. The eternal end of the recursive process is complete knowledge of the transcendental recursive object. The timeless end of the recursive process is that which we seek during the recursive process. In theory, the recursive process never ends, hence this end is timeless.¹³

“For π , the recursive process is any one of many means of computing π . Regardless of which means of computing π we choose, the eternal end for this means is complete knowledge of π , which is to say complete knowledge of the ratio of the circumference of any Euclidean circle to its diameter. The form of this eternal end is a number. Similarly, regardless of which means of computing π we choose, the terminal end of this means is an approximation of π that we use to compute a better approximation of π in the next cycle. The form of this timeless end is also a number.

“For the Truth, the recursive process is the endless process of deciding well. The eternal end of deciding well is the knowledge that makes a perfectly wise being perfectly wise. The form of this eternal end is whatever form of knowledge is most useful to a perfectly wise being in deciding well. Arguably, this form of knowledge is intuitive knowledge of what is to be done and how best to do it. A perfectly wise being simply knows what is to be done and how best to do it.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The timeless end of deciding well is an approximation of the eternal Truth that helps us pursue ever better approximations of the eternal Truth. The form of this timeless end is whatever form of knowledge is most useful to us as we pursue the eternal Truth. Arguably, this form of knowledge is a set of timeless stories with at least one story for each timeless factor of deciding well, which we use to help us find problems to solve, and a set of temporal stories, which we use to help us solve temporal problems. These stories ought to be as simple as possible, but not simpler; and the sets of stories ought to be as small as possible, but not smaller.

“*Substitutes for the Truth about Wisdom*

Studying what we can know and communicate about π can provide us with insights into what we can know and communicate about the eternal Truth. We can never know the value of π . The most we can know is either an approximate value of π or a means of computing π . Both of these substitutes for π have disadvantages.

“A major disadvantage of using an approximate value of π is that using it well calls for us to know under what circumstances it is useful in deciding well. For example, the approximate value of $22/7$ is useful for some problems but not all problems. By similar reasoning, a major disadvantage of using approximations of the eternal Truth is that using them well calls for us to know under what circumstances they are useful in deciding well.

“A major disadvantage of using a means of computing π is our limited ability to use this means. A calculus formula for computing π is useless to a person without knowledge of calculus; an arithmetic series for computing π is useless to a person without knowledge of arithmetic; and a geometric means of computing π is useless to a person without knowledge of geometry. By similar reasoning, a major disadvantage of using the means of pursuing the eternal Truth is our limited ability to decide well.

“*Three Approaches to Constraints*

Deciding well calls for us not only to reason well but also to contemplate well. In other words, it calls for us to think not only *rationally* but also *beautifully*. The concept of thinking beautifully will likely seem strange to most modern readers. This is in large part due to the modern habit of mindlessly reducing reality to models that we can solve using known tools for solving problems. We saw this in the EOQ/RTS example. We can also see it in the claim that we can compute π .

“From the frame of mathematics, π is *computable*, which is to say that we can program all of the steps for computing π into a machine that can do nothing more than follow logical instructions. In contrast, from the invariant frame of deciding well, π is not computable. The false claim that π is computable arises from reducing the actual problem of computing π to a theoretical problem. In short, it confuses reality with a mental map of reality.

“Imagine giving the greatest scientific minds of 1776 the task of computing the value of π to one trillion (10^{12}) decimal places. The most likely result would be a description of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

the best tool for computing π in 1776 and the explanation that computing π to one trillion decimal places was possible in theory but impossible in practice. A more useful explanation would be that inventing ever better tools would be more practical than computing π using current tools.¹⁴

“Now imagine giving the greatest scientific minds of today the task of computing π to one googol (10^{100}) decimal places. Based on how they respond to this challenge, these minds will likely fall into one of two basic groups. The first group will report how computing π to one googol decimal places might be done using currently existing or imagined tools. The second group will report that it is currently impossible to imagine what tools will first make computing π to one googol decimal places possible.¹⁵ From the invariant frame of deciding well, there is a third group. This group will report that the best means of computing π to one googol decimal places to enlarge the problem to the timeless problem of pursuing the Truth. Pursuing the Truth well calls for us to pursue the timeless end of deciding well, which in turn calls for us to pursue the virtuous circle of good people and good products. Over time, pursuing this virtuous circle will yield general purpose computing tools capable of computing π to far beyond one trillion decimal places.

“These three responses to constraints suggest three distinct political approaches to dealing with constraints. The first suggests that policymakers ought to promote solutions to problems based on current or imagined knowledge. The second suggests that policymakers ought to leave the problem of overcoming constraints to people to work out for themselves. The third suggests that policymakers ought to promote the invariant process of deciding well. As we shall see, the third approach results in less severe catastrophes and faster progress toward the timeless end of a good life for all.”

¹³ The eternal end is also the *terminal end* of the recursive process, which is to say it is the end that if ever reached would terminate the recursive process. The timeless end is also the *normative end* of the recursive process, which is the term Mortimer Adler used to describe this end.”

¹⁴ Computer scientists Kanada, Ushio, and Kuroda computed pi to over 1.24 trillion decimal places in December 2002. See the Wolfram MathWorld entry on pi digits <<http://mathworld.wolfram.com/PiDigits>> (26 August 2009).”

¹⁵ According to Thomas Sowell, when confronted with the complexities of life, those in the first group will tend to put their faith in the wisdom of experts and those in the second group will tend to put their faith in the wisdom of crowds, especially in the accumulated wisdom of the ages handed down to us in the form of language, culture, case law, and economic relations. For more on this see Thomas Sowell, *A Conflict of Visions: Ideological Origins of Political Struggles* (New York: William Morrow, 1987).”

Chapter 3, Refining Deciding Well, first paragraph, second footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “paradigms” to “frames” in the first sentence.

Appendix B, A Common Timeless End, first paragraph

Changed “ring of truth” to “ring of Truth” in the last sentence.

Changes in Version 2009.09.24

Preface, eighth paragraph

Changed “decide well” to “pursue the timeless end of deciding well” in the last three sentences (2 occurrences).

Chapter 1, Choosing Frames Well, first paragraph, second footnote,

Deleted the phrase “, thereby replacing irrational heuristic models with intuitive knowledge of how frames fit together into an apparently coherent whole” from the fifth sentence.

Chapter 1, Choosing Frames Well, last paragraph, end

Added the sentence: “In other words, we can address the problem of choosing frames well and the problem of deciding well *holistically*.”

Chapter 1, Useful Frames, first paragraph

Changed “the problem of deciding well” to “the problem of deciding well *holistically*” in the first sentence.

Chapter 1, Useful Frames, second paragraph, footnote

Deleted “(tactical)” and “(strategic)” from the last sentence.

Chapter 1, Temporal versus Timeless Values, second to last paragraph

“Over time, we learn that the timeless end of governing ourselves well (Justice) is a timeless factor of deciding well. *Governing ourselves well is a matter of living and working with others well.* We need the help of others to pursue the timeless end of deciding well. We can never *live and work* too well with others, including with people separated from us by great distances or long periods of time. Today, the idea of cooperating with people separated by great distances is common. However, the idea of cooperating with people separated by long periods is not. The ancient Chinese provide us with a simple model for cooperating over long periods: “The debts that we owe to our ancestors we pay to our descendants.” Following this model, we can cooperate in

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

deciding well across great distances and long periods with the universal moral rule: “The debts we cannot pay to whom they are due we pay to others by deciding well.” This includes the debts that we owe to those who provided us with the knowledge that we use freely.”

was changed to:

“Over time, we learn that the timeless end of governing ourselves well (Justice) is a **matter of cooperating well in the pursuit of the timeless end** of deciding well. We need the help of others to pursue the timeless end of deciding well. We can never **cooperate** too well with other **people, which** includes people separated from us by great distances or long periods of time. Today, the idea of cooperating with people separated by great distances is common. However, the idea of cooperating with people separated by long periods is not. The ancient Chinese provide us with a simple model for cooperating over long periods: “The debts that we owe to our ancestors we pay to our descendants.” Following this model, we can cooperate in deciding well across great distances and long periods with the universal moral rule: “The debts we cannot pay to whom they are due we pay to others by deciding well.” This includes the debts that we owe to those who provided us with the knowledge that we use freely. **Hence, the timeless end of governing ourselves, which is to say the timeless end of cooperating well, is a timeless factor in deciding well.**”

Chapter 1, Temporal versus Timeless Values, last paragraph, last sentence

“Over time, we learn that we ought to pursue the timeless end of deciding well **(Wisdom).**”

was changed to:

“Over time, we learn that we ought to pursue the timeless end of deciding well, hence the timeless factors deciding well. **These factors include the timeless ends of living well (the Good), believing well (the Truth), and governing ourselves well (Justice).**”

Chapter 2, The Need for Timeless Science, last paragraph

Changed “good people produce” to “good people, **deciding well**, produce” in the third sentence.

Changed “good products, **including good intellectual tools**, produce” to “good products, **used well**, produce” in the fourth sentence.

Changes in Version 2009.09.30

Preface, seventh paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “decide well” to “pursue the timeless end of deciding well” in the last three sentences (2 occurrences).

Chapter 1, Choosing Frames Well, first paragraph, second footnote

Deleted the phrase “, thereby replacing irrational heuristic models with intuitive knowledge of how frames fit together into an apparently coherent whole” from the fifth sentence.

Chapter 1, Overview

Inserted the new section:

“Boundless Pragmatism

We have seen the usefulness of distinguishing between temporal ends and timeless ends. We have also seen the usefulness of extending this distinction to values. Timeless values are tools for helping us to choose among an infinite number of infinite paths. Thinking deeply about timeless values calls for us to leave behind our current mental models of the world. In doing so, we become as sailors venturing beyond landfall. Fortunately, we can use more general versions of two mathematical concepts to help us navigate these potentially maddening seas.¹⁴

“From the frame of mathematics, there is a set of numbers that resembles the set of timeless factors of deciding well. This is the set of numbers that are both *transcendental* and *recursive*. These numbers are transcendental in that they are not algebraic, which is to say that they are not the solution of any integer polynomial. They are recursive in that they are the solution of at least one recursive process, which is to say they are the result of at least one endlessly repeating cycle of steps in which the result of one cycle becomes the basis for the next cycle.

“From the invariant frame of deciding well, we can imagine a set of transcendental recursive objects. The members of this set of objects are transcendental in that they are objects that we can define but can never know completely. They are recursive in that we can theoretically know them by means of at least one recursive process.

“The mathematical constant π is a transcendental recursive object. It is transcendental in that we can define it but can never know it completely. It is recursive in that we can theoretically know it by means of a recursive process. Similarly, the timeless end of deciding well (Wisdom) is a transcendental recursive object. Wisdom is transcendental in that we can define it but we can never know it completely: it is the knowledge that allows a perfectly wise being to decide perfectly well. Wisdom is recursive in that we can theoretically know it by means of the recursive process of deciding well.

“We can think of the recursive processes by which we come to know ever more about transcendent recursive objects as having three elements. These are (1) the recursive process, (2) the *transcendental end* of the recursive process, and (3) the *timeless end* of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

the recursive process. The transcendental end of the recursive process is complete knowledge of the transcendental recursive object. The timeless end of the recursive process is that which we seek during the recursive process.

“For π , the recursive process is any one of many means of computing π . Regardless of which means of computing π we choose, the transcendental end is the ratio of the circumference of any Euclidean circle to its diameter. The form of this transcendental end is a number. Similarly, regardless of which means of computing π we choose, the timeless end is ever better approximations of π . The form of this timeless end is also a number.

“For Wisdom, the recursive process is the endless process of deciding well. The transcendental end of deciding well is the knowledge that makes a perfectly wise being perfectly wise. The form of this transcendental end is whatever form of knowledge is most useful to a perfectly wise being in deciding well. The timeless end of deciding well is ever better approximations of Wisdom. The form of this timeless end is whatever form of knowledge is most useful to us as we pursue the timeless end of deciding well. As we shall see, this form is a set of timeless stories with at least one story for each timeless factor of deciding well, which we use to help us find problems to solve, and a set of temporal stories, which we use to help us solve temporal problems. These stories ought to be as simple as possible, but not simpler; and the sets of stories ought to be as small as possible, but not smaller.

“*Substitutes for Wisdom*”

Studying what we can know and communicate about π can provide us with insights into what we can know and communicate about Wisdom. We can never know the value of π . The most we can know is either an approximate value of π or a means of computing π . Both of these substitutes for π have disadvantages.

“A major disadvantage of using an approximate value of π is that using it well calls for us to know under what circumstances it is useful in deciding well. For example, the approximate value of $22/7$ is useful for some problems but not all problems. By similar reasoning, a major disadvantage of using approximations of Wisdom is that using them well calls for us to know under what circumstances they are useful in deciding well. For example, a decision rule that tells us always to tell the truth is wise for some situations but not for all situations. Telling a murderer where he can find his next victim is not wise.

“A major disadvantage of using a means of computing π is our limited ability to use this means. A calculus formula for computing π is useless to a person without knowledge of calculus; an arithmetic series for computing π is useless to a person without knowledge of arithmetic; and a geometric means of computing π is useless to a person without knowledge of geometry. By similar reasoning, a major disadvantage of using the means of pursuing Wisdom, which is to say deciding well, is our limited ability to decide well.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The Boundless Problem of Refining Knowledge

When we study the beliefs of others, our beliefs about their beliefs can affect their beliefs, which can in turn affect our beliefs about their beliefs, and so on to infinity. This, combined with the inexhaustibility of knowledge, the problem of choosing frames, the problem of induction, and the problem of choosing among an infinity of infinite paths point to the need to expand the problems we face to the limits of imagination, hence to a universal problem that contains all other problems. We can address this universal problem by pursuing the timeless end of deciding well.

“This radically different strategy for refining knowledge calls for us to confront the modern belief that stories that predict well also explain well. This insidious delusion arises from the belief that stories that both predict well and explain well are part of the Truth rather than simply good tools for pursuing the timeless factors of deciding well for a set of problems at the current time.

“We use stories about the world to predict and explain. A prediction is knowledge of what is likely to happen. An explanation is knowledge of why things happen as they do.¹⁵ Predictions and explanations help us decide well in different ways. Predictions help us to assign probabilities to uncertain events, which helps us to evaluate alternatives. Explanations help us to understand how our actions may change the world, which helps us to formulate alternatives. Better predictions help us better solve temporal problems, and better explanations help us find better temporal problems to solve. Better predictions help us become more *efficient*, and better explanations help us become more *effective*.¹⁶

“When we use stories that predict well but do not explain well to find problems to solve, we embed mistakes in our networks of knowledge-in-use. These embedded mistakes tend to hinder our progress toward the timeless end of deciding well. Releasing these embedded mistakes creates turbulence in the flow of resources. We can see both of these effects in the EOQ/RTS example. Companies with modern production systems learn to produce well less quickly than those companies with learning-based systems. In the fullness of time, these companies will create turbulence by converting or shutting down their modern systems.

“The Special Case of the Natural Sciences

We cannot refine knowledge without having beliefs about what we study and how best to study it. Our beliefs about these matters can hinder this process. Our beliefs about what we study can cause us to recognize things that are not real. One example of this was the many late nineteenth English-speaking astronomers who saw straight canals on Mars due to a mistranslation of the Italian term for channels (*canali*). They can also cause us to dismiss, overlook, or ignore things that are real. One example of this was how astronomers ignored how gravity bends light before they had a theory that predicted gravity would bend light. Our beliefs about how best to study can blind us to the best means of refining knowledge. One example of this is the belief that theories that cannot yet be tested by means of known empirical tests are not worthy of consideration by scientists. This ignores the benefit of considering logical stories that ring True but

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

which no one has yet figured out how to test empirically. Another example of this is the tendency for people who lack a timeless view of the process of refining knowledge to believe that current scientific knowledge is a part of the Truth rather than simply a good tool for pursuing the timeless factors of deciding well for a given set of problems at the current time. This tends to blind these people to problems with current scientific knowledge.

“When we study people we encounter an especially difficult problem of belief. We base our beliefs about the world on the world. When we act on our beliefs, we change the world. One example of this problem concerns the study of the beliefs of other people. Our beliefs about what others believe tends to change what others believe, which in turn tends to change what we believe about what others believe, and so on to infinity. Further, timeless problems like this necessarily involve leaning, and so involve the pursuits of all of the timeless factors of deciding well. The only sure way that we can avoid such difficult problems is to avoid studying people.

“The natural sciences are members of the subset of sciences that excludes sciences that involve studying people. With this exclusion, caution, and training, we can safely pursue the timeless end of believing well without concern for the pursuits of the other timeless factors of deciding well.”

“¹⁴ We can see the effects of trying to navigate uncharted portions of these potentially maddening seas in the personal life of mathematician Georg Cantor. Although his efforts to chart these seas drove him mad, he provided us with useful ideas about how to navigate these waters. From Cantor we may take the idea that there exist higher orders of infinity and that we can use sets to help us understand the nature of infinity. For more on this, read Amir Aczel’s book, *The Mystery Of The Aleph: Mathematics, the Kabbalah, and the Search for Infinity* (New York: Four Walls Eight Windows, 2000).”

“¹⁵ Some stories predict better than they explain. Quantum mechanics provides incredibly accurate statistical predictions of subatomic events without explaining their causes equally well. Rather than better means of predicting what quantum mechanics predicts, physicists today seek to explain what links the subatomic to the cosmological. Other stories explain better than they predict. Chaos theory provides a means of explaining *deterministic chaotic systems* without being able to predict these systems equally well. Predicting the long-term “weather” (trajectory in phase space) calls for knowing initial conditions with infinite precision, which is impossible. The best we can hope to do is to predict the “climate” (trajectory pattern in phase space).”

“¹⁶ One way that we can think about the truth of this claim is to consider whether it is theoretically possible to reduce any decision-making situation to a decision-tree model. From within this type of model, better predictions help us improve our assessments of uncertain events and better explanations help us improve the decision structure. This is not to say that reducing all decision making situations to decision tree models would be wise. A generalized decision tree model would not only be infinitely large, but also insanely complex. It would need to capture how the decision-maker’s actions affect

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

others and how other's reactions affect the decision-maker. It would also need to capture how the decision-maker's preferences might change with experience, especially those preferences that concern what modern economists call externalities. Regrettably, applying simple decision rules universally is only part of the answer to coping with such overwhelming complexity. As we shall see in the section on governing well, an approach in which governments use a few simple rules to set the bounds of just action combined with individuals using their judgment to act wisely within these bounds appears to be the best approach for pursuing the timeless end of deciding well."

Chapter 1, Overview, first two paragraphs

"In this section, we saw how the invariant concept of deciding well gives rise to a structure of timeless values. In the remaining three sections, we will see how this concept can help us pursue the timeless ends of living well (the Good), believing well (the Truth), and governing ourselves well (Justice).

"The section on living well begins with a brief discussion of how we ought to use both temporal and timeless tools in our endless pursuit of living well. The rest of the section defines timeless alternatives to the modern economic concepts of wealth, consumption, trade, production, taxation, and profit."

were changed to:

"In this section, we saw how the invariant concept of deciding well can help us pursue the timeless end of deciding well, and so all of the timeless factors of deciding well. In the remaining three sections, we will see how this invariant concept can help us pursue the timeless ends of living well, believing well, and governing ourselves well. Each of these sections presents a different facet of the invariant process of deciding well.

"The section on living well begins with a brief discussion of how we ought to use both temporal and timeless tools in our pursuit of the timeless end of living well. The rest of the section defines timeless alternatives to the modern economic concepts of wealth, consumption, trade, production, taxation, and profit. These often striking juxtapositions not only help us see the world from the timeless frame of living well, but also highlight the difference between tools meant to help us predict and tools meant to help us explain."

Chapter 1, Overview, last paragraph

Changed "timeless science" to "the invariant process of deciding well" in the first sentence.

Chapter 3, Refining Everyday Thinking, third paragraph

"We use stories about the world to predict and explain. A prediction is knowledge of what is likely to happen. An explanation is knowledge of why things happen as they do."⁶

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Predictions and explanations help us in different ways. Predictions help us to assign probabilities to uncertain events, which helps us to evaluate alternatives. Explanations help us to understand how our actions may change the world, which helps us to formulate alternatives. Better predictions help us become more *efficient* and better explanations help us become more *effective*.⁷

“Some stories predict better than they explain. Quantum mechanics provides incredibly accurate statistical predictions of subatomic events without explaining their causes equally well. Rather than better means of predicting what quantum mechanics predicts, physicists today seek to explain what links the subatomic to the cosmological. Other stories explain better than they predict. Chaos theory provides a means of explaining *deterministic chaotic systems* without being able to predict these systems equally well. Predicting the long-term “weather” (trajectory in phase space) calls for knowing initial conditions with infinite precision, which is impossible. The best we can hope to do is to predict the “climate” (trajectory pattern in phase space).”

“One way that we can think about the truth of this claim is to consider whether it is theoretically possible to reduce any decision-making situation to a decision-tree model. From within this type of model, better predictions help us improve our assessments of uncertain events and better explanations help us improve the decision structure. This is not to say that reducing all decision making situations to decision tree models would be wise. A generalized decision tree model would not only be infinitely large, but also insanely complex. It would need to capture how the decision-maker’s actions affect others and how other’s reactions affect the decision-maker. It would also need to capture how the decision-maker’s preferences might change with experience, especially those preferences that concern what modern economists call externalities. Regrettably, applying simple decision rules universally is only part of the answer to coping with such overwhelming complexity. As we shall see in the next section, an approach in which governments use simple rules to set the bounds of just action combined with individuals using their judgment to act wisely within these bounds appears to be the best approach for pursuing happiness (the Good) ever more wisely.”

was changed to:

“Again, we use stories about the world to predict and explain. A prediction is knowledge of what is likely to happen. An explanation is knowledge of why things happen as they do. Predictions and explanations help us in different ways. Predictions help us to assign probabilities to uncertain events, which helps us to evaluate alternatives. Explanations help us to understand how our actions may change the world, which helps us to formulate alternatives. Better predictions help us become more *efficient* and better explanations help us become more *effective*.”

Chapter 3, Eternal versus Timeless Truth, entire subsection

“Eternal versus Timeless Truth

The modern view of believing well tends to blind us not only to the existence of the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

timeless end of believing well but also to its form. Thinking deeply about timeless ends calls for us to leave behind the familiar world of temporal affairs. Without these familiar references, we are like sailors beyond landfall. Fortunately, we can use more general versions of two mathematical concepts to help us navigate these potentially maddening seas.

“From the frame of mathematics, there is a set of numbers that resembles the set of timeless factors of deciding well. This is the set of *transcendental recursive* numbers. These numbers are transcendental in that they are not algebraic, which is to say that they are not the solution of any integer polynomial. They are recursive in that they are the solution of one of at least one recursive process, which is to say they are the result of at least one endlessly repeating cycle of steps in which the result of one cycle becomes the basis for the next cycle.

“From the invariant frame of deciding well, we can imagine a set of transcendental recursive *objects* that corresponds to the more narrow set of transcendental recursive *numbers*. The members of this set of objects are transcendental in that they are objects that we can define but can never know completely. They are recursive in that we can *theoretically* know them by means of at least one recursive process.

“The mathematical constant π is a transcendental recursive object. It is transcendental in that we can define it but can never know it completely. It is recursive in that we can theoretically know it by means of a recursive process. Similarly, the timeless end of believing well (the Truth) is a transcendental recursive object. It is transcendental in that we can define it but can never know it completely. It is recursive in that we can theoretically know it by means of the recursive process of deciding well.

“We can think of the recursive processes by which we come to know ever more about transcendent recursive objects as having three elements. These elements are the recursive process itself, the *eternal end* of the recursive process, and the *timeless end* of the recursive process. The eternal end of the recursive process is complete knowledge of the transcendental recursive object. The timeless end of the recursive process is that which we seek during the recursive process. In theory, the recursive process never ends, hence this end is timeless.¹³

“For π , the recursive process is any one of many means of computing π . Regardless of which means of computing π we choose, the eternal end for this means is complete knowledge of π , which is to say complete knowledge of the ratio of the circumference of any Euclidean circle to its diameter. The form of this eternal end is a number. Similarly, regardless of which means of computing π we choose, the terminal end of this means is an approximation of π that we use to compute a better approximation of π in the next cycle. The form of this timeless end is also a number.

“For the Truth, the recursive process is the endless process of deciding well. The eternal end of deciding well is the knowledge that makes a perfectly wise being perfectly wise. The form of this eternal end is whatever form of knowledge is most useful to a perfectly

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

wise being in deciding well. Arguably, this eternal form of knowledge is intuitive knowledge of what is to be done and how best to do it. A perfectly wise being simply knows what is to be done and how best to do it.

“The timeless end of deciding well is an approximation of the eternal Truth that helps us pursue ever better approximations of the eternal Truth. The form of this timeless end is whatever form of knowledge is most useful to us as we pursue the eternal Truth. Arguably, this timeless form of knowledge is a set of timeless stories with at least one story for each timeless factor of deciding well, which we use to help us find problems to solve, and a set of temporal stories, which we use to help us solve temporal problems. These stories ought to be as simple as possible, but not simpler; and the sets of stories ought to be as small as possible, but not smaller.”

“¹³ The eternal end is also the *terminal end* of the recursive process, which is to say it is the end that if ever reached would terminate the recursive process. The timeless end is also the *normative end* of the recursive process, which is the term Mortimer Adler used to describe this end.”

was deleted.

Chapter 3, Eternal versus Timeless Truth, entire subsection

“*Substitutes for the Eternal Truth*”

Studying what we can know and communicate about π can provide us with insights into what we can know and communicate about the eternal Truth. We can never know the value of π . The most we can know is either an approximate value of π or a means of computing π . Both of these substitutes for π have disadvantages.

“A major disadvantage of using an approximate value of π is that using it well calls for us to know under what circumstances it is useful in deciding well. For example, the approximate value of $22/7$ is useful for some problems but not all problems. By similar reasoning, a major disadvantage of using approximations of the eternal Truth is that using them well calls for us to know under what circumstances they are useful in deciding well.

“A major disadvantage of using a means of computing π is our limited ability to use this means. A calculus formula for computing π is useless to a person without knowledge of calculus; an arithmetic series for computing π is useless to a person without knowledge of arithmetic; and a geometric means of computing π is useless to a person without knowledge of geometry. By similar reasoning, a major disadvantage of using the means of pursuing the eternal Truth is our limited ability to decide well.”

was deleted.

Chapter 3, *Three Approaches to Constraints*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “mindlessly reducing reality to models that we can solve using known tools for solving problems” to “confusing reality with our mental maps of reality” in the fourth sentence.

Changed “EOQ/RTS example” to “EOQ example, in which modern production engineers confuse the EOQ model with reality” in the fifth sentence.

Chapter 3, *Three Approaches to Constraints*, second paragraph

Deleted the last sentence: “In short, it confuses reality with a mental map of reality.”

Chapter 3, *Three Approaches to Constraints*, third paragraph

Moved footnote from the last sentence to the first sentence.

Deleted the last sentence: “A more useful explanation would be that inventing ever better tools would be more practical than computing π using current tools.”

Chapter 3, *Three Approaches to Constraints*, fourth paragraph, six and seventh sentences

“This group will report that the best means of computing π to one googol decimal places to enlarge the problem to the timeless problem of pursuing the Truth. Pursuing the Truth well calls for us to pursue the timeless end of deciding well, which in turn calls for us to pursue the virtuous circle of good people and good products.”

were changed to:

“This group will report that the best means of computing π to one googol decimal places is to pursue the timeless end of deciding well, which calls for us to pursue the virtuous circle of good people and good products.”

Chapter 3, *Three Approaches to Constraints*, last paragraph

Changed “dealing with” to “overcoming” in the first sentence.

Deleted the last sentence: “As we shall see, the third approach results in less severe catastrophes and faster progress toward the timeless end of a good life for all.”

Chapter 3, *Refining Deciding Well*, fifth paragraph, first footnote, end

Added the sentence: “Part of this is taking responsibility for our epigenetic programming, which can affect not only our own potential but also that of our descendants.”

Chapter 3, *Conclusion*, last paragraph, last three sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Inserted a paragraph break.

Chapter 4, Timeless Liberalism, second paragraph

Changed “**clan** justice” back to “**tribal** justice” in the last sentence.

Chapter 4, Timeless Liberalism, last paragraph

Deleted “(**Wisdom**)” from the last sentence.

Changes in Version 2009.10.24

Preface, fourth paragraph

Changed “***pi***” to “ **π** ” in the fourth sentence.

Preface, sixth paragraph

Changed “**chosen**” to “**people choose**” in the last sentence.

Changes in Version 2009.11.07

Acknowledgments, last paragraph

Changed “**Jack**” back to “**John Huntington**” in the first sentence.

Chapter 3, *Three Approaches to Constraints*, title

Inserted the following subsection:

“Positive and Normative Science

From the temporal view of the social sciences, the public sciences are monsters. Not only are they infinite in scope, they *prescribe the world as it ought to be in order to describe ever more accurately the world as it is*. This violates the modern claim that science ought to be *positive* rather than *normative*, which is to say that science ought to *describe the world as it is* rather than *prescribe the world as it ought to be*. In contrast, the social sciences, like the natural sciences, are positive, not normative.

“From the timeless view of the public sciences, the public sciences are both positive and normative. They describe the world as it is *in the process of becoming* rather than the world as it is *currently*. More accurately, they describe *ever better* the world as it is in the process of becoming. This calls for us to *prescribe the world as it ought to be in*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

order to describe ever better the world as it is in the process of becoming. From this timeless view, the social sciences are dangerously short-sighted.

“We can see this short-sightedness in the difference between modern economics and invariant decision science. From the temporal view of modern economics, people act as if they are trying to balance the marginal costs and benefits of using scarce resources. Seeking to balance these costs and benefits cause economies to tend toward an ideal state of the world in which the marginal cost of using each scarce resource equals the marginal benefit of using that scarce resource for all scarce resources. Modern economists call this ideal state *general equilibrium*. In contrast, from the invariant view of decision science, we act as if we are trying to balance the marginal costs and benefits of using scarce resources only to the extent that this behavior supports the pursuit of living well ever more wisely. Living well ever more wisely calls for us not only to satisfy our wants efficiently, which we do by seeking to equate marginal benefits with marginal costs, but also calls for us to learn from experience, which we do by seeking to replace non-knowledge resources with knowledge resources in the pursuit of living well. The changes wrought by learning through experience disrupt the tendency for economies to tend toward the modern economic ideal of general equilibrium. Modern economics ignores the benefits of learning-by-doing. As we saw in the EOQ example, to ignore these benefits is woefully short-sighted.”

Changes in Version 2009.12.27

Preface, eighth paragraph

Changed “ring of **T**truth” to “ring of **t**truth” in the last sentence.

Chapter 1, Boundless Pragmatism, first paragraph

Changed “our current models **of** the world” to “our current models **for explaining** the world” in the fourth sentence.

Chapter 1, *The Special Case of the Natural Sciences*, first paragraph

Changed “ring **T**True” to “ring **t**true” in the tenth sentence.

Chapter 3, *Beauty as a Guide to Believing Well*, last paragraph

Changed “ring of **T**truth” to “ring of **t**truth” in the last sentence.

Chapter 3, *Beauty as a Guide to Deciding Well*, second paragraph

Changed “**evolutionary**” to “**biological**” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Positive and Normative Science*, entire section

Deleted the section added on 11/7/09:

“Positive and Normative Science

From the temporal view of the social sciences, the public sciences are monsters. Not only are they infinite in scope, they *prescribe the world as it ought to be in order to describe ever more accurately the world as it is*. This violates the modern claim that science ought to be *positive* rather than *normative*, which is to say that science ought to *describe the world as it is* rather than *prescribe the world as it ought to be*. In contrast, the social sciences, like the natural sciences, are positive, not normative.

“From the timeless view of the public sciences, the public sciences are both positive and normative. They describe the world as it is *in the process of becoming* rather than the world as it is *currently*. More accurately, they describe *ever better* the world as it is in the process of becoming. This calls for us to *prescribe the world as it ought to be in order to describe ever better the world as it is in the process of becoming*. From this timeless view, the social sciences are dangerously short-sighted.

“We can see this short-sightedness in the difference between modern economics and invariant decision science. From the temporal view of modern economics, people act as if they are trying to balance the marginal costs and benefits of using scarce resources. Seeking to balance these costs and benefits cause economies to tend toward an ideal state of the world in which the marginal cost of using each scarce resource equals the marginal benefit of using that scarce resource for all scarce resources. Modern economists call this ideal state *general equilibrium*. In contrast, from the invariant view of decision science, we act as if we are trying to balance the marginal costs and benefits of using scarce resources only to the extent that this behavior supports the pursuit of living well ever more wisely. Living well ever more wisely calls for us not only to satisfy our wants efficiently, which we do by seeking to equate marginal benefits with marginal costs, but also calls for us to learn from experience, which we do by seeking to replace non-knowledge resources with knowledge resources in the pursuit of living well. The changes wrought by learning through experience disrupt the tendency for economies to tend toward the modern economic ideal of general equilibrium. Modern economics ignores the benefits of learning-by-doing. As we saw in the EOQ example, to ignore these benefits is woefully short-sighted.”

Chapter 3, *Three Approaches to Constraints*, second paragraph

Changed “can do” to “does” in the first sentence.

Chapter 3, *Three Approaches to Constraints*, third paragraph

Appended the sentence: “No one in 1776 imagined what we currently call supercomputers.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Moved the footnote from the end of the first sentence to the end of the last sentence

Chapter 3, *Three Approaches to Constraints*, fourth paragraph

Inserted paragraph break after fourth sentence.

Chapter 3, *Three Approaches to Constraints*, fifth paragraph

Changed “**which calls for us to pursue**” to “**hence to pursue**” in the second sentence.

Chapter 3, *Three Approaches to Constraints*, end

Added the following:

“These three responses to constraints we currently face in computing π suggest three distinct ways of thinking about policymaking. The first way suggests that policymakers ought to promote solutions to problems based on current or imagined knowledge. From this view, excellence in means concerns *efficiency at solving given problems*. We may call this the *engineering approach to policymaking*. The second way suggests that policymakers ought to leave the problem of overcoming constraints to people to work out for themselves. From this view, excellence in means concerns *fitness relative to the current state of an ever-changing environment*. We may call this the *biological approach to policymaking*. The third way suggests that policymakers ought to promote the invariant process of deciding well. From this view, excellence in means concerns *willingness and ability to pursue the timeless end of deciding well*. We may call this the *invariant approach to policymaking*.

“Associated with each of these three ways of thinking about policymaking is a distinct way of thinking about public order. From the engineering view, the role of policymakers is to find and solve public problems. The way policymakers define the problem and its solution provides them with a concept of order. In addressing their chosen problem and solution, policymakers impose their sense of order on the world. From this view, increasing public order is always good.

“From the biological view, the role of policymakers is to promote an environment that helps people find and solve problems that hinder increasing their ability to survive and thrive. Here, public order concerns the freedom of people to act on their current beliefs about how best to survive and thrive. Too much order, which is to say too little freedom to act on beliefs about how best to live, shuts down the experimentation needed to increase fitness. Too little order, which is to say too much freedom to act on beliefs about how best to live, also shuts down the experimentation needed to increase fitness. The best environment for increasing fitness calls for neither too much nor too little order. From this view, increasing public order is good when there is too little order and bad when there is too much order.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the invariant view, the role of policymakers is to promote an environment that helps people find and solve problems that hinder increasing their ability to survive and thrive. This goal of surviving and thriving is the same as that of the biological view. The difference is that policymakers understand that increasing our collective ability to survive and thrive involves improving our individual ability to pursue the timeless end of deciding well. From this view, increasing *temporal public order* may be good or bad, but increasing *timeless public order* is always good.”

Appendix B, A Common Timeless End, first paragraph

Changed “ring of Truth” to “ring of truth” in the last sentence.

Changes in Version 2010.03.18

Acknowledgments, second paragraph

Changed “has been” to “was” in the second sentence.

Acknowledgments, fourth paragraph

Changed “However, a” to “A” in the last sentence.

Preface, first paragraph

Changed “MBA” to “Stanford MBA” in the second sentence.

Preface, second paragraph

Changed “rules” to “decision rules” in the first sentence.

Chapter 1, Useful Frames, first paragraph, third sentence, footnote

Changed “self-similar, universal, and unvarying nature of the process” to “process” in the last sentence.

Chapter 1, Choosing Frames Well, second paragraph

Changed “resources” to “resources that are useful in deciding well” in the last sentence.

Chapter 1, *The Need for Timeless Frames*, first paragraph

Changed “timeless frame of deciding well” to “timeless frame for deciding well” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *The Need for Timeless Frames*, last paragraph

Changed “prepare for” to “address” in the fourth sentence.

Chapter 1, Temporal versus Timeless Values, title

Changed “Timeless” to “Invariant.”

Chapter 1, Temporal versus Invariant Values, first paragraph

Changed “decide well” to “choose problems to solve” in the third sentence.

Chapter 1, *Substitutes for Wisdom*, last paragraph

Changed “deciding well” to “of pursuing the timeless end of deciding well” in the third sentence.

Chapter 1, *The Boundless Problem of Refining Knowledge*, first paragraph

Changed “infinity of infinite paths” to “infinite number of infinitely long paths” in the second sentence.

Chapter 1, *The Boundless Problem of Refining Knowledge*, second paragraph

Changed “good tools for pursuing the timeless factors of deciding well for a set of problems at the current time” to “good but limited tools for pursuing the Truth” in the last sentence.

Chapter 1, *The Boundless Problem of Refining Knowledge*, third paragraph

Changed “temporal problems to solve” to “problems to solve” in the seventh sentence.

Chapter 1, *The Special Case of the Natural Sciences*, entire subsection

“*The Special Case of the Natural Sciences*”

We cannot refine knowledge without having beliefs about what we study and how best to study it. Our beliefs about these matters can hinder this process. Our beliefs about what we study can cause us to perceive things that are not real. One example of this was the many late nineteenth English-speaking astronomers who saw straight canals on Mars due to a mistranslation of the Italian term for channels (*canali*). They can also cause us to dismiss, overlook, or ignore things that are real. One example of this was how astronomers ignored how gravity bends light before they had a theory that predicted gravity would bend light. Our beliefs about how best to study can blind us to the best means of refining knowledge. One example of this is the belief that theories that cannot yet be tested by means of known empirical tests are not worthy of consideration by scientists. This ignores the benefit of considering logical stories that ring true but which

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

no one has yet figured out how to test empirically. Another example of this is the tendency for people who lack a timeless view of the process of refining knowledge to believe that current scientific knowledge is a part of the Truth rather than simply a good tool for pursuing the timeless factors of deciding well for a given set of problems at the current time. This tends to blind these people to problems with current scientific knowledge.

“When we study people we encounter an especially difficult problem of belief. We base our beliefs about the world on the world. When we act on our beliefs, we change the world. One example of this problem concerns the study of the beliefs of other people. Our beliefs about what others believe tends to change what others believe, which in turn tends to change what we believe about what others believe, and so on to infinity. Further, timeless problems like this necessarily involve leaning, and so involve the pursuits of all of the timeless factors of deciding well. The only sure way that we can avoid such difficult problems is to avoid studying people.

“The natural sciences are members of the subset of sciences that excludes sciences that involve studying people. With this exclusion, caution, and training, we can safely pursue the timeless end of believing well without concern for the pursuits of the other timeless factors of deciding well.”

was deleted.

Chapter 1, Overview, second paragraph

Changed “timeless” to “invariant” in the first and second sentences.

Chapter 1, Overview, third paragraph, last two sentences

“Next is a discussion of the timeless concept of science as the endless process of refining everyday thinking. The section ends with a discussion of the endless process of refining our beliefs about the invariant process of deciding well.”

were changed to:

“Next is a discussion of the invariant concept of science as the endless process of refining everyday thinking, which includes an argument supporting the claim that what we currently call natural science is a special case in which we choose to ignore the role consciousness plays in the endless process of refining everyday thinking. The section ends with a discussion of the endless process of refining our beliefs about the invariant process of deciding well.”

Chapter 1, Overview, last paragraph

Changed “timeless experiment is the belief that this system” to “experiment is the claim that this invariant system” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, Timeless Tools for Deciding Well, title

Changed “**Timeless**” to “**Invariant**.”

Chapter 2, Invariant Tools for Deciding Well, second paragraph

Changed “**timeless**” to “**invariant**” in the third and fourth sentences.

Deleted the last sentence: “**In planning terms, we live well by planning our lives using strategic tools and working our plans using tactical tools.**”

Chapter 2, Invariant Tools for Deciding Well, last paragraph

Changed “**timeless**” to “**invariant**” in the last sentence.

Chapter 2, Timeless Wealth, title

Deleted “**Timeless**.”

Chapter 2, Invariant Wealth, first paragraph

“From the temporal frame of modern economics, wealth is what people need to live well based on what they currently know. From the invariant frame of deciding well, wealth is what we need to live well based on all that can be known. **Temporal wealth concerns what we currently want; timeless wealth concerns what we truly need.**”

were changed to:

“From the temporal frame of modern economics, wealth is what people need to live well based on what they currently know. **Wealth concerns what we currently want.** From the invariant frame of deciding well, wealth is what we need to live well based on all that can be known. **Wealth concerns what we truly need to live well, hence to decide well.**”

Chapter 2, Timeless Consumption, title

Deleted “**Timeless**.”

Chapter 2, *Chicago Screwdrivers*, first paragraph, first three sentences

“As we saw in the EOQ/RTS example, using temporal tools for **the timeless task of** finding problems to solve tends to blind us to the best problem to solve. Just as we ought never to use hammers to drive in screws, we ought never to use temporal tools that are not also timeless tools to find problems to solve. **Perhaps** the greatest danger of this comes from using modern economic **terms** to guide our actions.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“As we saw in the EOQ/RTS example, using temporal tools for finding problems to solve tends to blind us to the best problem to solve. Just as we ought never to use hammers to drive in screws, we ought never to use temporal tools that are not also timeless tools to find problems to solve. **One of the greatest dangers of this comes from using modern economic tools that either concern or ought to concern consumption to guide our actions.**”

Chapter 2, Timeless Trade, title

Deleted “**Timeless.**”

Chapter 2, Timeless Production, title

Deleted “**Timeless.**”

Chapter 2, Timeless Taxation, title

Deleted “**Timeless.**”

Chapter 2, Timeless Profit, title

Deleted “**Timeless.**”

Chapter 2, The Need for Timeless Science, title

Changed “**Timeless**” to “**Invariant.**”

Chapter 2, The Need for Invariant Science, first paragraph

Changed “a **timeless science of deciding well**” to “an **invariant concept of science**” in the sixth sentence.

Changed “this concept **of science**” to “this concept” in the last sentence.

Deleted the last footnote:

“**From the timeless view of trading well, the knowledge revolution is the transition from the geographical expansion of trade in non-knowledge products to the geographical and temporal expansion of trade of non-knowledge and knowledge products, including moral obligations. This is but one of many ways that we can describe this revolution. From the timeless liberal view, it is the synthesis of the classical liberal thesis and the modern liberal antithesis. From the timeless dialectical view, it is the synthesis of the dualist thesis and the materialist antithesis. All of these explanations focus our attention on some aspects of the knowledge revolution by blinding us to other aspects. Rather than putting forth one or more of these partial**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

explanations of this phase transition in public affairs, this work puts forth a set of tools for refining the Truth.”

Chapter 3, Pursuing the Ring of Truth, last paragraph

Changed “temporal science” to “modern science” in the second sentence.

Changed “the universal invariant of deciding well” to “pursuing the timeless end of deciding well” in the last sentence.

Chapter 3, *The Elephant in the Room*, first paragraph

“Perhaps the most beautiful story that emerges from the universal invariant of deciding well concerns the relation between the timeless factors of deciding well and the values that people claim to seek when they seek to link or re-link with something infinitely greater than themselves. In other words, it concerns the relation between transcendent factors and transcendent values.”

was changed to:

“One of the most beautiful things to emerge from pursuing the invariant end of deciding well is the relation between the timeless factors of deciding well and the values that people claim to seek when they seek to link or re-link with something infinitely greater than themselves. In other words, it is the relation between transcendental factors and transcendental values.”

Chapter 3, *The Elephant in the Room*, second paragraph

Changed “the need” to “a spiritual need” in the second sentence.

Changed “This” to “Seeking to satisfy this insatiable spiritual need” in the third sentence.

Changed “insatiable need” to “need” in the fourth sentence.

Chapter 3, *The Elephant in the Room*, third paragraph

Changed “seek these transcendent” to “pursue these transcendental” in the second sentence.

Chapter 3, Conclusion, first paragraph

Changed “timeless ends” to “transcendental ends” in the last sentence.

Chapter 3, Conclusion, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**timeless** concept” to “**invariant** concept” in the first sentence.

Chapter 3, Conclusion, second paragraph

Changed “**timeless** concept” to “**invariant** concept” in the first sentence.

Changed “**Timeless** science” to “**This concept of** science” in the second sentence.

Chapter 3, Conclusion, last paragraph

Changed “**timeless science**” to “**this boundlessly pragmatic approach to believing well**” in the first sentence.

Changed “**timeless science**” to “**this approach**” in the second sentence.

Chapter 4, *The Explicit Experiment*, second paragraph

Changed “view of **timeless science**” to “**invariant** view of **deciding well**” in the fifth sentence.

Chapter 4, *The Explicit Experiment*, last paragraph

Changed “view of **timeless science**” to “**invariant** view of **deciding well**” in the sixth sentence.

Chapter 4, *A Sovereign Story of Timeless Science*, title

Changed “**Timeless Science**” to “**Boundless Pragmatism.**”

Chapter 4, *A Sovereign Story of Boundless Pragmatism*, second paragraph

Changed “**timeless concept of science**” to “**invariant view of deciding well**” in the fifth sentence.

Chapter 4, *Promote Deciding Well, not Stability*, second paragraph

Changed “economic **efficiency** and **political expedience** over the **timeless end** of **deciding well**” to “**the temporal values of economic growth and stability** over the **invariant values of the Good, the Truth, Wisdom, Justice, and Beauty**” in the last sentence.

Chapter 4, *Promote Deciding Well, not Stability*, last paragraph

Changed “**timeless end of deciding**” to “**invariant values**” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Deleted the last sentence: “Policymakers can help prepare people for living in such a civilization by promoting knowledge of timeless science.”

Chapter 4, Timeless Liberalism, title

Deleted “Timeless.”

Chapter 4, Liberalism, first paragraph

Changed “timeless science” to “boundless pragmatism” in the first sentence (2 occurrences).

Chapter 4, Liberalism, second paragraph

Changed “social justice, including sustainable social justice,” to “social justice” in the fourth sentence.

Changes in Version 2010.03.30

Preface, eighth paragraph

Changed “pursuing these intertwined pursuits well” to “deciding well, so conceived,” in the first sentence.

Preface, ninth paragraph, indent

Changed “deciding well, so conceived,” to “deciding well” in the first sentence.

Changes in Version 2010.04.24

Preface, fourth paragraph

Changed “timeless values” to “values” in the fifth sentence.

Preface, seventh paragraph

“According to this concept of deciding well, inasmuch as we decide well, we learn ever more about deciding well. Over time, we collectively (1) learn that we ought to pursue factors of deciding well only to the point that they are useful to us; (2) learn to distinguish between factors that we can have in excess, which we may call *bounded factors of deciding well*, and factors that we can never have completely, which we may call *timeless factors of deciding well*; and (3) learn that the endless pursuits of all

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

timeless factors of deciding well intertwine to form a single endless pursuit. The first two of these lessons are obvious. The third calls for an explanation:

For any **timeless** factor of deciding well (A) and any other **timeless** factor of deciding well (B), pursuing A well calls for us to decide well, which in turn calls for us to pursue B well. Further, pursuing B well calls for us to decide well, which in turn calls for us to pursue A well. Hence, the pursuit of A and the pursuit of B intertwine to form a single endless pursuit. Further, how tightly the pursuits of A and B intertwine depends on how well we **pursue the timeless end of deciding well**. Applying this logic to all **timeless** factors, the endless pursuits of all **timeless** factors of deciding well intertwine to form a single endless pursuit. Further, how tightly these endless pursuits intertwine depends on how well we **pursue the timeless end of deciding well**.”

was changed to:

“According to this concept of deciding well, inasmuch as we decide well, we learn ever more about deciding well. Over time, we collectively **learn** (1) that we ought to pursue factors of deciding well only to the point that they are useful to us; (2) **that there are some universal factors of deciding well that we can never have in excess**; and (3) that the endless pursuits of all **of these universal, boundless** factors of deciding well intertwine to form a single endless pursuit. The first two of these lessons are obvious. The third calls for an explanation:

For any **universal, boundless** factor of deciding well (A) and any other **universal, boundless** factor of deciding well (B), pursuing A well calls for us to decide well, which in turn calls for us to pursue B well. Further, pursuing B well calls for us to decide well, which in turn calls for us to pursue A well. Hence, the pursuit of A and the pursuit of B intertwine to form a single endless pursuit. Further, how tightly the pursuits of A and B intertwine depends on how well we **decide**. Applying this logic to all **universal, boundless** factors **of deciding well**, the endless pursuits of all **universal, boundless** factors of deciding well intertwine to form a single endless pursuit. Further, how tightly these endless pursuits intertwine depends on how well we **decide**.”

Preface, eighth paragraph

Changed “**the** stress” to “stress” in the second to last sentence.

Preface, ninth paragraph, first sentence

“One conclusion we may draw from this simple **analysis** is that **ignoring the mistakes we embed in our networks of knowledge-in-use will cause** us to severely underestimate the probability of great turbulence.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“One conclusion we may draw from this simple model is that the modern, static concept of equilibrium based on what people currently know leads us to severely underestimate the probability of great turbulence. The cause of this great turbulence is the catastrophic release of embedded stress involved in moving toward a dynamic equilibrium based on pursuing the invariant end of deciding well. This claim is consistent with mathematician Benoit Mandelbrot’s discovery that market price changes exhibit scale invariance.”

Preface, tenth paragraph

Changed “embeds mistakes into our networks of knowledge-in-use, thereby creating” to “will create” in the first sentence.

Chapter 1, *The Need for Timeless Frames*, last paragraph

Changed “timeless values” to “invariant values” in the last sentence.

Chapter 1, Temporal versus Invariant Values, second paragraph

Changed “infinitely greater” to “greater” in the fifth sentence.

Chapter 1, Temporal versus Invariant Values, eighth paragraph

Deleted “which we may reasonably call the invariant frame of deciding well, ” from the first sentence.

Chapter 1, Temporal versus Invariant Values, ninth and tenth paragraphs

“Over time, we learn to distinguish between two types of factors of deciding well. The first are those factors that we can have in excess. We may call these *bounded factors of deciding well*. Freedom, trust, and what modern economists call scarce resources are bounded factors of deciding well. For example, we do not need the freedom to cripple or kill our business competitors, boundless trust in the integrity of bankers, or a different luxury car for each day of the week. The second are those factors that we can never have completely. We may call these *timeless factors of deciding well*. For example, the Good, the Truth, and Wisdom are timeless factors of deciding well. We need the Good to avoid deprivation, which hinders us from deciding well. We need the Truth to avoid ignorance, which also hinders us from deciding well. Wisdom is knowledge of how to decide well. We can never have too much knowledge of how to decide well.¹³

“Over time, we learn that the endless pursuits of all of the timeless factors of deciding well intertwine to form a single endless pursuit. Consider the relation between the pursuit of the Good and the pursuit of the Truth. We pursue the Good by deciding well, which calls for us to pursue the Truth. We pursue the Truth by deciding well, which calls for us to pursue the Good. Thus the pursuit of the Good and the pursuit of the Truth intertwine to form a single pursuit. Further, the better we decide, the tighter we intertwine the pursuits of the Good and the Truth. By similar reasoning, all pursuits of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

timeless factors intertwine into a single pursuit, which we may call the invariant pursuit of deciding well. Further, the better we decide, the tighter we intertwine all pursuits of timeless factors into the invariant pursuit of deciding well.”

“¹³ The timeless end of deciding well calls for believing well in frames that range from the very short run to the infinitely long run. In Daoist terms, it calls for believing well about steps as well as paths, and paths as well as steps. A journey of a thousand miles starts from under our feet (*Daodejing*, chapter 64). Pursuing the timeless end of deciding well would benefit greatly from the ability to think in many frames simultaneously. For a witty explanation of the evolution of this ability, see Stewart, I. and Cohen, J., *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997).”

was changed to:

“Over time, we learn that some factors of deciding well differ from the others in several important respects. First, we can never have enough of these factors, which is to say our need for these factors is *boundless*. Second, all people need these factors to decide well, which is to say that these factors are *universal*. Third, we can never possess these factors completely, which is to say our pursuit of these factors is *timeless*. These boundless, universal, and timeless factors include the timeless ends of living well (the Good), believing well (the Truth), and deciding well (Wisdom). We need the Good to avoid deprivation, which hinders us from deciding well. We need the Truth to avoid ignorance, which also hinders us from deciding well. Wisdom is knowledge of how to decide well. We can never have too much knowledge of how to decide well.

“Over time, we learn that the endless pursuits of all **boundless, universal, and** timeless factors of deciding well intertwine to form a single endless pursuit. Consider the relation between the pursuit of the Good and the pursuit of the Truth. We pursue the Good by deciding well, which calls for us to pursue the Truth. We pursue the Truth by deciding well, which calls for us to pursue the Good. Thus the pursuit of the Good and the pursuit of the Truth intertwine to form a single pursuit, which we may call *the invariant pursuit of deciding well*. Further, the better we decide, the tighter we intertwine the pursuits of the Good and the Truth. By similar reasoning, all pursuits of **boundless, universal, and** timeless factors of deciding well, which we may call *invariant factors of deciding well*, intertwine to form the invariant pursuit of deciding well. Further, the better we decide, the tighter we intertwine the pursuits of the invariant factors of deciding well.¹³”

“¹³ Pursuing the timeless end of deciding well benefits greatly from the ability to think in many frames simultaneously. For a witty explanation of the evolution of this ability, see Stewart, I. and Cohen, J., *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997).”

Chapter 1, Temporal versus Invariant Values, tenth paragraph

Changed “timeless factors” to “invariant factors” in all (3 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “endless pursuit” to “timeless pursuit” in the last two sentences (2 occurrences).

Chapter 1, Temporal versus Invariant Values, eleventh paragraph

Changed “a timeless factor” to “an invariant factor” in the last sentence.

Chapter 1, Temporal versus Invariant Values, last paragraph

Changed “timeless end of deciding well, hence the timeless factors deciding well” to “invariant end of deciding well, hence the invariant factors deciding well” in the fifth sentence.

Chapter 1, Boundless Pragmatism, first paragraph

“We have seen the usefulness of distinguishing between temporal ends and timeless ends. We have also seen the usefulness of extending this distinction to values. Timeless values are tools for helping us to choose among an infinite number of infinite paths. Thinking deeply about timeless values calls for us to leave behind our current mental models for explaining the world. In doing so, we become as sailors venturing beyond landfall. Fortunately, we can use more general versions of two mathematical concepts to help us navigate these potentially maddening seas.¹⁴”

¹⁴ We can see the effects of trying to navigate uncharted portions of these potentially maddening seas in the personal life of mathematician Georg Cantor. Although his efforts to chart these seas drove him mad, he provided us with useful ideas about how to navigate these waters. From Cantor we may take the idea that there exist higher orders of infinity and that we can use sets to help us understand the nature of infinity. For more on this, read Amir Aczel’s book, *The Mystery Of The Aleph: Mathematics, the Kabbalah, and the Search for Infinity* (New York: Four Walls Eight Windows, 2000).”

was changed to:

“Invariant values are tools for helping us to choose among a nearly infinite number of paths forward. Thinking deeply about these paths calls for us to leave behind our current mental models for explaining the world. In doing so, we become as sailors venturing beyond landfall. Fortunately, we can use more general versions of two mathematical concepts to help us navigate these potentially maddening seas.¹⁴”

¹⁴ We can see the effects of trying to navigate uncharted portions of these potentially maddening seas in the personal life of mathematician Georg Cantor. Although his efforts to chart these seas eventually drove him mad, he provided us with useful tools for navigating these waters, which include set theory and transfinite numbers. For more on this, read Amir Aczel’s book, *The Mystery Of The Aleph: Mathematics, the Kabbalah, and the Search for Infinity* (New York: Four Walls Eight Windows, 2000).”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Boundless Pragmatism, first paragraph

Changed “timeless” to “invariant” in the first sentence (2 occurrences).

Chapter 1, Boundless Pragmatism, second paragraph

Changed “timeless factors” to “invariant factors” in first sentence.

Chapter 1, Boundless Pragmatism, third paragraph

Changed “endless process” to “process” in the second sentence.

Chapter 1, Boundless Pragmatism, last paragraph

Changed “timeless factor” to “invariant factor” in fifth sentence.

Chapter 1, *Substitutes for Wisdom*, last paragraph

Deleted “, which is to say of pursuing the timeless end of deciding well,” from the last sentence.

Chapter 1, *The Boundless Problem of Refining Knowledge*, first paragraph

Changed “the problem of induction, and the problem of choosing among an infinite number of infinitely long paths” to “and the problem of induction” in second sentence.

Chapter 1, *The Boundless Problem of Refining Knowledge*, second paragraph

Changed “good but limited tools for pursuing the Truth” to “tools for pursuing the Truth” in last sentence.

Chapter 1, *The Boundless Problem of Refining Knowledge*, third paragraph, footnote

Changed “decision-maker” to “decider” in all (3 occurrences).

Chapter 1, *The Boundless Problem of Refining Knowledge*, last paragraph, last sentence

“In the fullness of time, these companies will create turbulence by converting or shutting down their modern systems.”

was changed to:

“Over time, companies with modern production systems will create turbulence by shutting down these systems.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Conclusion, second paragraph

Changed “tools meant to help us **predict** and tools meant to help us **explain**” to “tools meant to help us **solve given problems** and tools meant to help us **find problems to solve**” in last sentence.

Chapter 2, Pleasure and Pain, fifth paragraph

Deleted “**an investment in**” from the last two sentences (2 occurrences).

Chapter 2, *Chicago Screwdrivers*, first paragraph

Changed “**timeless** tools” to “**invariant** tools” in the second sentence.

Chapter 2, The Need for Invariant Science, title

Changed “**Invariant** Science” to “**a Science of Deciding Well.**”

Chapter 3, Believing Well, entire section

Changed “**timeless** end of deciding well” to “**invariant** end of deciding well” in all (9 occurrences).

Chapter 3, Pursuing the Ring of Truth, first paragraph

Changed “**timeless** concepts” to “**invariant** concepts” and “**a timeless** concept” to “**an invariant** concept” in the second sentence.

Changed “*coherent whole*” to “*coherent whole that is useful in living ever more wisely*” in the last sentence.

Chapter 3, Pursuing the Ring of Truth, last paragraph

“**This simple concept of beauty is itself beautiful. It works from the realm of modern science to the realm of timeless art. Such is the beauty that emerges from pursuing the invariant end of deciding well.**”

was deleted.

Chapter 3, *The Elephant in the Room*, first paragraph

Changed “**timeless** factors of deciding well” to “**invariant** factors of deciding well” in the first sentence.

Chapter 3, *The Elephant in the Room*, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**spiritual** need” to “**religious** need” in the second sentence.

Changed “**insatiable spiritual** need” to “need” in the third sentence.

Chapter 3, *The Elephant in the Room*, last paragraph

Changed “**invariant end of deciding well, which includes the** timeless end of believing well,” to “the timeless end of believing well” in the second sentence.

Chapter 3, *Beauty as a Guide to Believing Well*, first paragraph

Changed “**timeless** factors of deciding well” to “**invariant** factors of deciding well” in the first and last sentences (2 occurrences).

Chapter 3, *Beauty as a Guide to Believing Well*, second paragraph

Changed “**timeless** veil of ignorance” to “veil of **complete** ignorance” in the second to last sentence.

Chapter 3, *Beauty as a Guide to Believing Well*, third paragraph, second footnote, first three sentences

“**This argument implies that the timeless end of revering life well is a timeless factor of deciding well. We may conceive of this timeless end as a good life for all living beings (the Good for all living beings). We may also conceive of this timeless end as linking or re-linking with something infinitely greater than ourselves for eternity (Bliss).**”

were changed to:

“**More accurately, this thought experiment calls for us to imagine what we would want if before we were born we had complete knowledge of everything except knowledge of the circumstances of our birth (or births).**”

Chapter 3, *Pursuing the Truth Wisely*, last paragraph

Changed “**would** help us” to “**aim to** help us” in the last sentence.

Chapter 3, *Pursuing the Truth Wisely*, last paragraph

Changed “**timeless** categories” to “**invariant** categories” in the fourth sentence.

Chapter 3, *Three Approaches to Constraints*, second paragraph

Changed “theoretical problem” to “theoretical problem **of computing π** ” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Three Approaches to Constraints*, fourth paragraph

Changed “minds” to “people” in the second sentence.

Chapter 3, *Three Approaches to Constraints*, end

Inserted the following subsections:

“Invariant Public Order

The invariant end of deciding well is a transcendental end, which is to say that it is an end that we can define but can never achieve. Hence, the public order that emerges from pursuing the invariant end of deciding well is transcendental, which is to say it is a public order that we can define but can never achieve. The more we understand about the nature of this order, the more readily we can pursue it.

“Imagine a team cycling race in which we measure excellence by the average time it takes team members to complete a two hundred kilometer course. During this event, team members can interact only with one another and not with members of other teams. How should team members choose to order themselves?

“Imagine how a team taking an engineering approach to policymaking would approach the problem of ordering themselves in this situation. The first task would be to reduce the ill-defined problem to a problem or set of problems that members of the team can solve. The simplest solution would be to choose a single public order for all conditions expected along the course. A refinement to this solution would be to choose different public orders for different conditions. There might be an order for traveling over flat terrain, another for traveling up hills, and a third for traveling down hills. Another refinement would be to develop procedures for rotating cyclists from more tiring positions to less tiring positions as they become tired within a given type of order. Yet another refinement would be to develop procedures for rotating cyclists from more tiring positions to less tiring positions when the team shifts between types of order. Over time, the team would refine their ability to maintain orders and to shift between these orders. To an outside observer, an accomplished team taking this approach would resemble an expert military drill team.

“Now imagine how a team taking a modern evolutionary approach to policymaking would approach the problem of ordering themselves in this situation. Team members would develop relatively simple rules for overcoming constraints. Over time, they would learn ever better rules for overcoming constraints. To an outside observer, an accomplished team taking this approach would resemble a school of fish or a flock of birds.

“Finally, imagine how a team taking the invariant evolutionary approach to policymaking would approach the problem of ordering themselves in this situation. Team members would distinguish between the tactical end of cycling as a team well based on what they currently know and the strategic end of deciding well. In addressing

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

the tactical problem, they would choose to make the best use of current resources in addressing the tactical problem of cycling as a team well. In addressing the strategic problem, they would seek ever better means of replacing non-knowledge resources useful in deciding well with knowledge resources useful in deciding well. In short, they would seek ever better means of deciding well.

“In seeking ever better means of deciding well, the team would consider technological as well as organizational changes. One such change would be the combination of regenerative braking and boosting motors. This combination would allow cyclists to store otherwise wasted energy from cycling downhill to use when cycling uphill. Another such change would be a networked steering control system similar to experimental automated highway control systems that allow cars to travel bumper-to-bumper at high speeds. Such a system would execute tactical moves much more quickly and precisely than people can execute them. The combination of regenerative breaking, boosting motors, and automated steering would quickly lead to the development of a means of transferring power from one vehicle to another. This change would eliminate the need to rotate team members from tiring positions to less tiring positions. It would also allow the team to reduce wind resistance by putting cyclists who ride taller than others near the center of the pack. To a long-standing outside observer, an accomplished team taking the invariant evolutionary approach to constraints would resemble a liquid that undergoes phase changes as it becomes ever more fluid.

“*Zero Public Entropy*

Liquids that undergo phase changes as they become ever more fluid lie outside of our everyday experience. A dramatic example of such a liquid is that of the isotope of helium that has two neutrons and two electrons (helium-4). Helium-4 atoms are objects subject to quantum effects having integer spin, which physicists call bosons. Unlike objects subject to quantum effects having non-integer spin, which physicists call fermions, more than one boson can occupy the same quantum state. Statistically, this is unlikely to happen unless bosons enter their lowest energy state, which physicists call their *ground state*. As the temperature approaches absolute zero (0 degrees Kelvin), an ever larger number of ⁴He atoms enter their ground state. At 2.172 degrees Kelvin, a large enough percentage of helium-4 atoms enter this state for the liquid to suddenly change from being only slightly more fluid than classical physics predicts to being much more fluid than classical physics predicts. In other words, liquid helium suddenly changes from being a fluid (Helium I) to a superfluid (Helium II).

“One lesson that we can learn from studying liquids like helium-4 is the usefulness of the concept of entropy in pursuing transcendental ends. Entropy is a measure of the amount of potentially available useful resources of a given type in an object. In modern thermodynamics, entropy is a measure of the potentially useful energy resources in a part of the world isolated from other parts of the world.¹³ We pursue the transcendental end of *absolute zero temperature* in the isolated part of the world by removing useful energy from it. In invariant decision science, entropy is a measure of the potentially available non-knowledge wealth (resources useful in deciding well) in the process of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

deciding well. We pursue the transcendental end of *zero public entropy* by removing non-knowledge wealth from the process of deciding well.¹⁴

“We can use the concept of zero public entropy to help us find problems to solve. As we saw in the EOQ example, the concepts we use to frame our problems tend to blind us to finding better problems to solve. In the team cycling example above, one such blinder is the association of “cycling” with “bicycling.” This association tends to blind us to possibilities for substituting knowledge for non-knowledge resources in ways that would violate our concept of bicycling. These possibilities include regenerative braking, boosting motors, and automated steering. A strategy based on lowering public entropy, which is to say a strategy based on removing ever more non-knowledge resources useful in deciding well from the endless process of deciding well, would reveal this problem.

“A more subtle blinder in the team cycling example is the false belief that we can separate the problem of cycling as a team well from the problem of deciding well. For a team of cyclists to take a truly invariant approach to constraints, its solution to the problem cycling as a team well must be part of the solution to the problem of deciding well. For this to be true, being part of the team must be something every team member needs to do in order to decide well rather than simply something every team member wants to do. Again, a strategy based on lowering public entropy, which is to say a strategy of removing ever more non-knowledge resources useful in deciding well from the process of deciding well, would reveal this problem. Here, we see how lowering public entropy creates a problem whose solution does not fit within the bounds of our chosen problem of cycling well as a team. In general, lowering public entropy reveals not only problems whose solutions fall within the bounds of our chosen problem, but also problems whose solutions surpass the bounds of our chosen problem, thereby overturning the belief system that led us to choose the problem we chose. We may call the problems whose solutions fall within the bounds of our chosen problem *normal problems* and those that surpass the bounds of our chosen problem *revolutionary problems*.

“**The Decision Tree Interpretation of Quantum Mechanics**”

Another lesson that we can learn from studying liquids like helium-4 is that we can use the knowledge of what happens as we approach such natural boundaries as absolute zero temperature to help us understand subtle changes that happen far from these natural boundaries. By studying what happens in extreme cases, we can gain a deeper understanding of our everyday world. By studying what happens as we approach the transcendental end of absolute zero temperature, we may refine our beliefs about how what happens at the microscopic level of quantum mechanics affects what happens on the macroscopic level of the true sciences. Similarly, by studying what happens as we approach the transcendental end of absolute zero public entropy, we may refine our beliefs about how what happens on the microscopic level of quantum mechanics affects what happens on the macroscopic level of the public sciences.

“Although quantum mechanical models provide us with incredibly accurate statistical predictions about what will happen on the microscopic level, it does not provide us with

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

exact predictions about what will happen on this level. This uncertainty is due to two strange behaviors of objects on this level. First, these objects can act either like waves or like particles. Second, pairs of these objects may become entangled in such a way that changing the state of one object instantaneously changes the state of the other object regardless of how distant the other object is. Rigorous empirical testing over many decades has failed to disprove the existence of these two strange behaviors.

“For more than seven decades physicists have been trying to interpret the mathematical models of quantum mechanics in ways that ring true with what they believe they know about causation on the macroscopic level. Most of these interpretations fall into one of three basic categories. The first of these basic categories contains interpretations that claim we should not waste resources trying to explain how objects at this level behave. We may call this the *Copenhagen interpretation* category. The second of these categories contains interpretations that claim that in time we will be able to find currently hidden variables that explain how objects at this level behave. We may call this the *hidden-variables interpretation* category. The third of these categories contains interpretations that claim that every possible way that an object can transition irreversibly from acting like a wave to acting like a particle actually happens. When one of these irreversible events happens, the world¹⁵ splits into a world in which the event occurs and into another world in which the event does not occur. Following this logic, everything that could possibly have happened since the beginning of time has actually happened. We may call this the *many worlds interpretation* category.

“We can use the model of a decision tree¹⁶ to imagine how to interpret quantum mechanics in a way that is most useful in pursuing the invariant end of deciding well.¹⁷ We may think of all people seeking to decide perfectly as a single public entity seeking to decide perfectly. This suggests an interpretation of quantum mechanics that resembles a temporal mirror image of the many worlds interpretation. Rather than an ever expanding number of actual parallel worlds that make up the universe, there exists an ever shrinking number of currently possible future states-of-the-world that make up a single world. This single world consists of (1) a sequence of once current states-of-the-world, (2) a current state-of-the-world, and (3) a nearly infinite set of currently possible states-of-the-world. In other words, it consists of a past, a present, and a nearly infinite number of possible futures. We may call this forward-looking, boundlessly-pragmatic approach to quantum mechanics the *decision tree interpretation*.

“From the modern view of physics, the decision tree interpretation of quantum mechanics appears to ignore such things as constraints on deciding well imposed by relativity theory and information theory. In contrast, from the invariant frame of decision science, the decision tree interpretation sacrifices details about the world as we currently understand it in order to consider what we might learn. When we expand the problem of explaining quantum mechanics based on what we currently know about physics to the problem of explaining quantum mechanics based on all that can be known about the world, we sacrifice details about what we currently know about physics. Among these details are constraints on deciding well that concern the transmission and processing of information imposed by relativity theory and information theory. These

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

details disappear into uncertain event nodes in decision trees. This is consistent with the purpose of decision tree models, which is to help us find and solve problems within the domain of public science.

“For a problem that falls within the domain of quantum mechanics, we ought to think like engineers, which is to say we ought to use the tools of quantum mechanics to solve the problem. For a problem that falls within the domain of modern physics, we ought to think like modern physicists, which is to say we ought to seek the truth within the domain of modern physics. For a problem that falls outside the domain of modern physics but within the domain of true science, we ought to think like true scientists, which is to say we ought to pursue the timeless end of believing well without regard for the other invariant factors of deciding well. For a problem that falls outside the domain of true science but within the domain of public science, we ought to think like public scientists, which is to say we ought to pursue the timeless end of believing well by pursuing all of the invariant factors of deciding well.¹⁸

“Consider the problem of whether to invest in a research program that has a goal of directly overcoming the constraint on deciding well imposed by relativity theory. From the view of modern physics, communicating at greater than light speed is impossible, hence investing in a research program to discover a way of communicating at greater than light speed would be foolish. From the view of true science, communicating at greater than light speed does not ring true with what else we know about physics, hence investing in such a research program would likely be foolish. From the view of public science, not only does communicating at greater than light speed not ring true, but also the net present value of the benefits of communicating at greater than light speed are currently likely to be small relative to the net present value of the cost of the research program, hence investing in such a research program would be even more likely to be foolish.¹⁹”

“¹³ Zero thermodynamic entropy is a transcendental object, which is to say something that we can define but can never achieve. To achieve zero thermodynamic entropy in a part of the world we would need to lower the temperature of that part of the world to absolute zero temperature. Lowering the temperature to absolute zero temperature in a part of the world calls for completely isolating that part of the world from the rest of the world, which is impossible.”

“¹⁴ Zero public entropy is the transcendental end of the process of inducing the creation of knowledge useful in deciding well, hence in governing ourselves well. As such, it is the *process-of-deciding-well* in which it is not possible to make any person behind the veil of complete ignorance better off. Students of modern economics may recognize this as the invariant equivalent of the *state-of-the-world* in which it is not possible to make one person better off without making another person worse off (Pareto optimality). For more on the process of inducing the creation of knowledge, see Appendix A.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹⁵ Note that the term ‘world’ here means what modern astronomers call the ‘universe.’ This use of the term ‘world’ allows us to reserve the term ‘universe’ for the set of parallel worlds created in the many worlds interpretation of quantum mechanics.”

“¹⁶ We may model deciding well as a tree consisting of events that change the course of events that the decider controls and events that change the course of events that the decider does not control. We may call the former *decision nodes* and the latter *uncertain event nodes*.”

“¹⁷ Implicit in this decision-oriented view of the world is belief that free will, which is to say in the power of people to change the course of history, exists. We currently have no empirical way of disproving that free will either exists or does not exist. However, we can logically determine that pursuing the invariant end of deciding well calls for us to believe that free will exists. If free will does not exist, we have no choice in what to believe; including whether to believe that free will exists or does not exist. We are as puppets in a shadow play. On the other hand, if free will exists, we have a choice in whether to believe that free will exists or does not exist. If we choose to believe that free will exists, we have a logical reason to try to pursue the invariant end of deciding well. If we choose to believe that free will does not exist, we will have no logical reason to try to pursue the invariant end of deciding well. From the invariant view of science, we ought to choose the research program that seeks to disprove the beautiful choice, which is that free will exists. This calls for us to act as if we believe that free will exists.”

“¹⁸ Following this reasoning, we can reconcile biological evolution with public science. If the problem we choose lies within the domain of modern biology, we ought to think like modern biologists. If this problem lies outside the domain of modern biology but within the domain of true science, we ought to think like true scientists. If the problem lies outside the domain of true science but within the domain of public science, we ought to think like public scientists. Choosing the right frames for solving our chosen problems is an important part of the process of pursuing the timeless end of believing well.”

“¹⁹ People on earth have little need to communicate with each other at greater than light speed. Arguably, if there are people elsewhere, they would be wise not to communicate with people on earth until people on earth learn what deciding well truly means.”

Chapter 3, Refining Defining Well, first paragraph, second footnote

“²⁰ To students of Milton Friedman, these two rules will seem familiar. However, communication across frames is only partial. The distinction between theories that describe what is (positive science) and theories that prescribe what ought to be (normative science) is not the same as the distinction between theories that predict and theories that explain. From the invariant view of deciding well, we use theories that explain to describe the world as it is in the process of becoming. Hidden in these theories is a descriptive statement of a prescriptive program, which is that we are

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

programmed to pursue the timeless end of living well (the Good). Biologists call this a teleonomic program.”

was deleted.

Chapter 3, Refining Defining Well, second paragraph

Changed “timeless concept of science” to “invariant concept of science” and “systems of people” to “public systems” in the first sentence.

Chapter 3, Refining Defining Well, third paragraph

Changed “timeless concept of science” to “invariant concept of science” and “systems” to “public systems” in the first sentence.

Chapter 3, Refining Defining Well, third paragraph, footnote

“²¹ This is compatible with the instrumental interpretation of Milton Friedman’s definition of positive economic science as “a body of tentatively accepted generalizations about economic phenomena that can be used to predict the consequences of changes in circumstances” (Friedman, Milton, “The Methodology of Positive Economics,” *Essays in Positive Economics*, Chicago: University of Chicago Press, 1953, p. 39).”

was changed to:

“²¹ This is compatible with the instrumental interpretation of Milton Friedman’s definition of positive economic science as “a body of tentatively accepted generalizations about economic phenomena that can be used to predict the consequences of changes in circumstances” (Friedman, Milton, “The Methodology of Positive Economics,” *Essays in Positive Economics*, Chicago: University of Chicago Press, 1953, p. 39). However, communication across frames is only partial. The distinction between theories that describe the world as it is (positive theories) and theories that prescribe the world as it ought to be (normative theories) is not the same as the distinction between theories that describe the world as it is (temporal theories) and theories that describe the world as it is in the process of becoming (timeless theories). Hidden in theories that describe the world as it is in the process of becoming is a description of a prescriptive program, which is living things are programmed to pursue the timeless end of living well (the Good). Biologists call this a teleonomic program.”

Chapter 3, Refining Defining Well, fifth paragraph, last footnote

Changed “spiritual teachings” to “religious teachings” in the last sentence.

Chapter 3, Conclusion, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**transcendental** ends” to “**timeless** ends” in the last sentence.

Chapter 3, Conclusion, second paragraph

Changed “boundlessly pragmatic” to “boundlessly-**pragmatic**” in the second sentence.

Chapter 3, Conclusion, last paragraph

Changed “**the boundlessly** pragmatic” to “**this** pragmatic” in the last sentence.

Chapter 4, *A Sovereign Story of Boundless Pragmatism*, last paragraph

Changed “**timeless** refinement” to “refinement” in the second sentence.

Chapter 4, Liberalism, first paragraph

Changed “deciding well, **so conceived**” to “**pursuing the timeless end of** deciding well” in the fourth sentence.

Chapter 4, Liberalism, second paragraph

Changed “**John Rawls**’ veil of ignorance” to “the veil of **complete** ignorance” in the fourth sentence.

Chapter 4, Liberalism, last paragraph

Changed “**timeless** end of deciding well” to “**invariant** end of deciding well” in the last sentence.

Chapter 4, Summary and Conclusion, last paragraph

Changed “a structure of **timeless** values” to “a structure of **invariant** values” in the last sentence.

Appendix B, Revering Life Well, entire section

Changed “**timeless** end of deciding well” to “**invariant** end of deciding well” in all (4 occurrences).

Appendix B, Experiencing the Mysterious, second paragraph

Changed “view of **timeless science**” to “**invariant view** of **deciding well**” in second sentence.

Appendix B, *Einstein's Twin Warnings*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**Albert** Einstein” to “Einstein” in the third sentence.

Appendix B, *Einstein's Twin Warnings*, last paragraph

Changed “in terms of **timeless science**” to “in **invariant** terms” in fourth from last sentence.

Appendix B, A Common Timeless End, first paragraph

“From the invariant view of deciding well, materialists and dualists can find a common timeless end in the publicly proclaimed and practiced timeless end of revering life well. We can never be certain that we ought to pursue this public end. However, we can aspire to be wise by seeking to disprove that we ought to pursue it. Undertaking this research program calls for making a civil leap of faith. We base the decision to undertake this civil research program upon the ring of truth.”

was changed to:

“Materialists and dualists can find a common timeless end in the publicly proclaimed and practiced timeless end of revering life well. We need to pursue this timeless end of revering life well in order to pursue the invariant end of deciding well. Further, we pursue the timeless end of revering life well by deciding well. Hence, this timeless end of revering life well is an invariant factor of deciding well. The timeless pursuit of revering life well intertwines with the timeless pursuits of all of the invariant factors of deciding well. We may call this common timeless end *Wholeness*. Pursuing Wholeness is part of pursuing the Good, the Truth, Wisdom, Justice, and Beauty; and pursuing the Good, the Truth, Wisdom, Justice, and Beauty are parts of pursuing Wholeness.”

Changes in Version 2010.05.01

Preface, second paragraph

Changed “**stories**” to “**descriptions of the world**” in last sentence.

Preface, seventh paragraph

Moved “**that**” from inside the numbered clauses to before the numbered clauses in second sentence.

Preface, seventh paragraph

Moved “**that**” from inside the numbered clauses to before the numbered clauses in second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed last three sentences from:

“Hence, the pursuit of A and the pursuit of B intertwine to form a single endless pursuit. Further, how tightly the pursuits of A and B intertwine depends on how well we decide. Applying this logic to all universal, boundless factors of deciding well, the endless pursuits of all universal, boundless factors of deciding well intertwine to form a single endless pursuit. Further, how tightly these endless pursuits intertwine depends on how well we decide.”

to:

“Hence, the pursuit of A and the pursuit of B intertwine to form a single endless pursuit in which the better we decide the more tightly the endless pursuits of these two factors intertwine. Applying this logic to all universal, boundless factors of deciding well, the endless pursuits of all universal, boundless factors of deciding well intertwine to form a single endless pursuit in which the better we decide the more tightly the endless pursuits of these factors intertwine.”

Chapter 1, Boundless Pragmatism, last paragraph

Changed “timeless stories” to “timeless descriptions of the world”, “story” to “description”, and “temporal stories” to “temporal descriptions of the world” and in sixth sentence.

Changed “stories” to “descriptions” and “sets of stories” to “sets of descriptions” and in last sentence.

Chapter 1, *The Boundless Problem of Refining Knowledge*, second paragraph

Changed “stories” to “descriptions of the world” in all (2 occurrences).

Chapter 1, *The Boundless Problem of Refining Knowledge*, third paragraph

Changed “stories about” to “descriptions of” in the first sentence.

Chapter 1, *The Boundless Problem of Refining Knowledge*, last paragraph

Changed “stories” to “descriptions of the world” in the first sentence.

Chapter 1, Overview, third paragraph

Changed “role of consciousness play” to “the possible roles that consciousness and free will play” in the first sentence.

Chapter 2, Profit, entire section

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“**Profit is the return on acting wisely.** From the temporal frame of modern economics, profit is what is left over from a stream of income after people have paid fair market value for all the resources they used to produce it. From the classical liberal view **of modern economics**, people are free to spend the profits they earn as they please. From the modern liberal view, people owe part of their profits to society for the use of socially owned resources. **Some modern liberals believe that this includes the debt people owe to others for the use of knowledge that they use freely.** According to **these** modern liberals, people owe up to ninety percent of their profits to society.⁶

“From the **invariant frame of deciding well**, we owe **a** debt to those people who created the knowledge we use freely, and to the whole of life for providing us with the natural resources we use freely. We **pay these debts by deciding well. In effect, we pay** these debts to the stewards of life rather than to the stewards of society.”

⁶ Alperovitz, G. and Daly, L., *Unjust Deserts: How the Rich Are Taking Our Common Inheritance and Why We Should Take It Back* (New York: The New Press, 2008).”

was changed to:

“From the temporal frame of modern economics, profit is what is left over from a stream of income after people have paid fair market value for all the resources they used to produce it. From the invariant view of deciding well, profit is simply the return on deciding well.

“From the classical liberal view, people are free to spend the profits they earn as they please. From the modern liberal view, people owe part of their profits to society for the use of socially-owned resources. According to **some** modern liberals, people owe up to ninety percent of their incomes to society **to pay for the use of knowledge that they use freely.**⁶ **As we shall see, from the timeless liberal view**, we owe debts to those people who created the knowledge we use freely, and to the whole of life for providing us with the natural resources we use freely. We **owe** these debts to the stewards of life **and to life itself**, rather than to the stewards of society **and to society itself. We pay these debts by deciding well.**”

⁶ Alperovitz, G. and Daly, L., *Unjust Deserts: How the Rich Are Taking Our Common Inheritance and Why We Should Take It Back* (New York: The New Press, 2008).”

Chapter 3, Believing Well, entire section

Changed “**story**” to “**description**” in all (4 occurrences).

Changed “**stories about**” to “**descriptions of**” in all (7 occurrences).

Changed “**stories**” to “**descriptions**” in all (39 occurrences).

Chapter 3, *The Decision Tree Interpretation of Quantum Mechanics*, end

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Added the following subsection:

“Judging Descriptions of the World

The thermodynamically irreversible transition of any microscopic object from acting like a wave to acting like a particle can potentially affect any other microscopic object in the world; hence we can neither predict nor explain with absolute certainty. From a reductionist view, all descriptions of the world are probabilistic. From a holistic view, all descriptions of the world are partial. How do we judge probabilistic/partial descriptions of the world?

“From the invariant view of deciding well, we judge descriptions of the world by how useful they are in helping us pursue the invariant end of deciding well. This calls for two types of descriptions. The first type helps us predict what will happen based on what we currently know about the world. We use descriptions of this type to help us solve given problems. The second type helps us find problems to solve.

“Pursuing the invariant end of deciding well is a process subject to constraints. To pursue the invariant end of deciding well wisely, we need to use resources wisely. A description of the world that provides us with the most accurate prediction is not necessarily the best tool for predicting what will happen. Using relativistic mechanics to predict the behavior of objects produces more accurate results than using classical mechanics. However, using classical mechanics is often the better choice. This is because the extra cost of using relativistic mechanics is often not worth the extra benefit of using it. Similarly, using the invariant technique of judging problems by how each rings true with what we know about pursuing all invariant factors of deciding well is likely to produce the best problems to solve. However, using other techniques is often the better choice. This is because the extra cost of using this invariant technique is often not worth the extra benefit of using it. To pursue the invariant end of deciding well wisely, we need to consider not only the benefits but also costs of using descriptions of the world.

“Over time, we develop rules for helping us decide which descriptions are best under various conditions. These rules are not perfect. For example, a widely-used rule in modern physics tells us to use classical mechanics to find and solve mechanical problems when the velocities of objects are small relative to the speed of light. However, because this rule ignores the accumulation of small errors over time, it fails in the case in satellite-based global positioning systems. This is the same reason that modern economics fails as a tool for explaining the world. In the case of the satellite-based global position systems, the cause of these errors concerns the slowing of satellite clocks relative to terrestrial clocks. In the case of modern economics, the cause of these errors concerns the creation and use of knowledge.”

Chapter 4, *The Explicit Experiment*, first paragraph

Changed “sovereign rights story” to “description of sovereign rights” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, Timeless Liberalism, fifth paragraph

Changed “world” to “earth” in the second sentence.

Appendix B, The Farther Reaches of Our Nature, first paragraph

Changed “stories” to “descriptions” in the first sentence.

Changes in Version 2010.05.04

Corrections for mistakes found by Pat Vaughn.

Chapter 3, Pursuing the Ring of Truth, fourth paragraph, third sentence

“If the object is not novel, we will not learn from it. If it is too novel, we will not be able to learn from it.”

was changed to:

“If the object is not novel or too novel we will not learn from it.”

Chapter 3, *The Elephant in the Room*, second paragraph, fifth sentence

“Over time, we collectively refine our means of deciding well by deciding well.”

was changed to:

“We collectively refine our means of deciding well by deciding well over time.”

Chapter 3, *The Elephant in the Room*, third paragraph, fourth sentence

“ Over time, we collectively refine our means of deciding well by deciding well.”

was changed to:

“We collectively refine our means of deciding well by deciding well over time.”

Chapter 3, Refining Everyday Thinking, fourth paragraph

Inserted the following paragraph

“Two rules arise from the distinction between descriptions we use to predict and descriptions we use to explain. First, we ought to use the term ‘cause’ only with descriptions that we use to explain. We explain causes. ‘Cause’ is a cue for a tool for

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

helping us to find problems to solve within a given set of conditions. Second, we need not worry about the realism of the descriptions that we use to predict. We need realism to help us find problems to solve, not to help us predict.”

Chapter 3, *Three Approaches to Constraints*, second to last paragraph

Deleted “, which is to say too little freedom to act on beliefs about how best to live,” from the third sentence.

Deleted “, which is to say too much freedom to act on beliefs about how best to live,” from the fourth sentence.

Chapter 3, *Three Approaches to Constraints*, second to last paragraph

Changed “hinder increasing” to “hinder **them from** increasing” in the first sentence.

Chapter 3, *Three Approaches to Constraints*, last paragraph

Changed “hinder increasing” to “hinder **them from** increasing” in the first sentence.

Chapter 3, *Invariant Public Order*, first paragraph

Changed “transcendental, **which is to say**” to “transcendental:” in the second sentence.

Chapter 3, *Invariant Public Order*, fifth paragraph

Changed “cycling **as a team** well” to “cycling well” in the second and third sentences (2 occurrences).

Chapter 3, *Zero Public Entropy*, last paragraph

Changed “cycling **as a team** well” to “cycling well” in the first and second sentences (2 occurrences).

Changed “cycling well **as a team**” to “cycling well” in the fifth sentence.

Chapter 3, *Refining Deciding Well*, first paragraph

“The two-way relation between the world and the descriptions we use to guide our actions calls for us to distinguish between the descriptions we use to predict and the descriptions we use to explain. Two rules arise from this distinction. First, we ought to use the term ‘cause’ only with descriptions that we use to explain. We explain causes. ‘Cause’ is a cue for a tool for helping us to find problems to solve.²⁰ Second, we need not worry about the realism of the descriptions that we use to predict. We need realism to help us find problems to solve, not to help us predict.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“²⁰ More accurately, ‘cause’ is a cue for a tool for helping us to find problems to solve within a given set of conditions. Note that this claim concerns the demand side of believing well.”

was deleted.

Chapter 3, *A Crude Look at the Whole*, first paragraph, first footnote

Changed “for deciding well in ways that create turbulence” to “for new programs, which tend to create additional turbulence” in the last sentence.

Changes in Version 2010.05.15

Chapter 1, *Choosing Frames Well*, last paragraph

Changed “*holistically*” to “*holistically*” in the last sentence.

Chapter 1, *The Need for Timeless Frames*, last paragraph

Changed “we can know something about what we need to address unexpected problems infinitely far into the future” to “*we can know about what we need to address unexpected problems infinitely far into the future*” in the fourth sentence.

Chapter 1, *Boundless Pragmatism*, last four paragraphs

“The mathematical constant π is a transcendental recursive object. It is transcendental in that we can define it but can never know it completely. It is recursive in that we can theoretically know it by means of a recursive process. Similarly, **the timeless end of deciding well** (Wisdom) is a transcendental recursive object. Wisdom is transcendental in that we can define it but we can never know it completely: **It** is the knowledge that allows a perfectly wise being to decide perfectly well. Wisdom is recursive in that we can theoretically know it by means of the recursive process of deciding well.

“We **can** think of the recursive processes by which we come to know ever more about transcendent recursive objects as having three elements. **These are (1) the recursive process, (2) the *transcendental end* of the recursive process, and (3) the *timeless end* of the recursive process.** The transcendental end of the recursive process is complete knowledge of the transcendental recursive object. The timeless end of the recursive process is that which we seek during the recursive process.

“For π , the recursive process is any one of many means of computing π . Regardless of which means of computing π we choose, the transcendental end is the ratio of the circumference of any Euclidean circle to its diameter. The form of this transcendental end is a number. Similarly, regardless of which means of computing π we choose, the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

timeless end is ever better approximations of π . The form of this timeless end is also a number.

“For Wisdom, the recursive process is the endless process of deciding well. The transcendental end of deciding well is the knowledge that makes a perfectly wise being perfectly wise. The form of this transcendental end is whatever form of knowledge is most useful to a perfectly wise being in deciding well. The timeless end of deciding well is ever better approximations of Wisdom. The form of this timeless end is whatever form of knowledge is most useful to us as we pursue the timeless end of deciding well. As we shall see, this form is a set of timeless descriptions of the world with at least one description for each invariant factor of deciding well, which we use to help us find problems to solve, and a set of temporal descriptions of the world, which we use to help us solve temporal problems. These descriptions ought to be as simple as possible, but not simpler; and the sets of descriptions ought to be as small as possible, but not smaller.”

were changed to:

“The mathematical constant π is a transcendental recursive object. It is transcendental in that we can define it but can never know it completely. It is recursive in that we can theoretically know it by means of a recursive process. Similarly, Wisdom is a transcendental recursive object. Wisdom is transcendental in that we can define it but we can never know it completely: **Wisdom** is the knowledge that allows a perfectly wise being to decide perfectly well. Wisdom is recursive in that we can theoretically know it by means of the recursive process of deciding well.

“We **may** think of the recursive processes by which we come to know ever more about transcendent recursive objects as having three elements. **The first of these elements is the *recursive process* itself. In pursuing π , the recursive process is any one of many means of computing π . In pursuing Wisdom, the recursive process is the process of deciding well.**

“**The second of these elements is the *transcendental end*. The transcendental end is complete knowledge of the transcendental recursive object. In pursuing π , the transcendental end is the ratio of the circumference of a Euclidean circle to its diameter. The form of this transcendental end is a number. In pursuing Wisdom, the transcendental end is the knowledge that allows a perfectly wise being to decide perfectly well. The form of this transcendental end is whatever form of knowledge is most useful to a perfectly wise being in deciding well.**

“**The third of these elements is the *timeless end*. The timeless end is that which we seek during the recursive process. In pursuing π , the timeless end is ever better approximations of π . The form of this timeless end is a number. In pursuing Wisdom, the timeless end is ever better approximations of Wisdom. The form of this timeless end is whatever form of knowledge is most useful to us as we pursue the timeless end of deciding well. As we shall see, this form is a set of timeless descriptions of the world**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

with at least one description for each invariant factor of deciding well, which we use to help us find problems to solve, and a set of temporal descriptions of the world, which we use to help us solve temporal problems. These descriptions ought to be as simple as possible, but not simpler; and the sets of descriptions ought to be as small as possible, but not smaller.¹⁵”

“¹⁵ The inspiration for this belief about the timeless end of deciding well was Albert Einstein’s belief about what he called the objective truth as expressed in his book, *The Evolution of Physics from Early Concepts to Relativity and Quanta* (New York: Simon and Schuster, 1966, p. 31): “Physical concepts are free creations of the human mind, and are not, however it may seem, uniquely determined by the external world. In our endeavor to understand reality we are somewhat like a man trying to understand the mechanism of a closed watch. He sees the face and the moving hands, even hears its ticking, but he has no way of opening the case. If he is ingenious he may form some picture of a mechanism which could be responsible for all the things he observes, but he may never be quite sure his picture is the only one which could explain his observations. He will never be able to compare his picture with the real mechanism and he cannot even imagine the possibility or the meaning of such a comparison. But he certainly believes that, as his knowledge increases, his picture of reality will become simpler and simpler and will explain a wider and wider range of his sensuous impressions. He may also believe in the existence of the ideal limit of knowledge and that it is approached by the human mind. He may call this ideal limit the objective truth.””

Chapter 1, *The Boundless Problem of Refining Knowledge*, second paragraph

“This radically different strategy for refining knowledge calls for us to confront the modern belief that descriptions of the world that predict well also explain well. This **insidious** delusion arises from the belief that descriptions of the world that both predict well and explain well are part of the Truth rather than simply tools for pursuing the **Truth**.”

was changed to:

“This radically different strategy for refining knowledge calls for us to confront the modern belief that descriptions of the world that **help us** predict well also **help us** explain well. This delusion arises from the modern belief that descriptions of the world that both predict well and explain well are part of the Truth rather than simply tools for pursuing the **invariant factors of deciding well**.”

Chapter 1, *The Boundless Problem of Refining Knowledge*, third paragraph, second footnote

“¹⁷ One way that we can think about the truth of this claim is to consider whether it is theoretically possible to reduce any decision-making situation to a decision-tree model. From within this type of model, better predictions help us improve our assessments of uncertain events and better explanations help us improve the decision structure. This is

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

not to say that reducing all decision making situations to decision tree models would be wise. A generalized decision tree model would not only be infinitely large, but also insanely complex. It would need to capture how the decider's actions affect others and how others' reactions affect the decider. It would also need to capture how the decider's preferences might change with experience, especially those preferences that concern what modern economists call externalities. Regrettably, applying simple decision rules universally is only part of the answer to coping with such overwhelming complexity. As we shall see in the section on governing well, an approach in which governments use a few simple rules to set the bounds of just action combined with individuals using their judgment to act wisely within these bounds appears to be the best approach for pursuing the timeless end of deciding well."

was deleted.

Chapter 2, Refining Deciding Well, first paragraph, first sentence

"In this section, we apply the invariant concept of deciding well to the timeless end of living well, which is to say to the endless pursuit of the Good."

was deleted.

Chapter 3, Pursuing the Ring of Truth, third paragraph, fifth sentence

Added the sentence:

"As we learn more, objects that once were too hard often bring us pleasure and objects that once brought us pleasure often become boring."

Chapter 3, Pursuing the Ring of Truth, fourth paragraph

Deleted the fifth sentence: "This is especially true of scientific theories."

Changed "folk" to "pop" in the last sentence.

Chapter 3, *The Elephant in the Room*, first paragraph, last sentence

"In other words, it is the relation between transcendental factors and transcendental values."

was deleted.

Chapter 3, *Beauty as a Guide to Deciding Well*, first paragraph, footnote

"To people who believe that analytical tools are the only legitimate tools for believing well, this timeless advice is little more than religious nonsense. They understand that the problem of defining excellence in choosing frames is infinitely deep. In defining the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

concept of excellence in choosing frames, we must choose a frame. To choose this frame, we must choose a frame. To choose this frame, we must choose a frame. And so on to infinity. **They fail to understand that the invariant means of addressing this problem is also infinitely deep.** The best frame for choosing frames is the frame that best helps us decide well. The best frame for choosing this frame is the frame that best helps us pursue the timeless end of deciding well. The best frame for choosing this frame is the frame that best helps us pursue the timeless end of deciding well. And so on to infinity. Regardless of how many times we repeat this cycle, the best frame for choosing frames is the frame that best helps us pursue the timeless end of deciding well.”

was changed to:

“The problem of defining excellence in choosing frames is infinitely deep, **but so too is the invariant means of addressing this problem.** In defining the concept of excellence in choosing frames, we must choose a frame. To choose this frame, we must choose a frame. To choose this frame, we must choose a frame. And so on to infinity. The best frame for choosing frames is the frame that best helps us **pursue the timeless end of deciding** well. The best frame for choosing this frame is the frame that best helps us pursue the timeless end of deciding well. The best frame for choosing this frame is the frame that best helps us pursue the timeless end of deciding well. And so on to infinity. Regardless of how many times we repeat this cycle, the best frame for choosing frames is the frame that best helps us pursue the timeless end of deciding well.”

Chapter 3, *Invariant Public Order*, third paragraph

Changed “Imagine” to “**Now** imagine” in the first sentence.

Chapter 3, *The Decision Tree Interpretation of Quantum Mechanics*, last paragraph

Changed “ring true” to “ring true **with what else we know about physics**” in the fourth sentence.

Chapter 3, *Judging Descriptions of the World*

“*Judging Descriptions of the World*”

The thermodynamically irreversible transition of any microscopic object from acting like a wave to acting like a particle can potentially affect any other microscopic object in the world; hence we can neither predict nor explain with absolute certainty. From a reductionist view, all descriptions of the world are probabilistic. From a holistic view, all descriptions of the world are partial. How do we judge probabilistic/partial descriptions of the world?

“From the invariant view of deciding well, we judge descriptions of the world by how useful they are in helping us pursue the invariant end of deciding well. This calls for two types of descriptions. The first type helps us predict what will happen based on what we

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

currently know about the world. We use descriptions of this type to help us solve given problems. The second type helps us find problems to solve.

“Pursuing the invariant end of deciding well is a process subject to constraints. To pursue the invariant end of deciding well wisely, we need to use resources wisely. A description of the world that provides us with the most accurate prediction is not necessarily the best tool for predicting what will happen. Using relativistic mechanics to predict the behavior of objects produces more accurate results than using classical mechanics. However, using classical mechanics is often the better choice. This is because the extra cost of using relativistic mechanics is often not worth the extra benefit of using it. Similarly, using the invariant technique of judging problems by how each rings true with what we know about pursuing all invariant factors of deciding well is likely to produce the best problems to solve. However, using other techniques is often the better choice. This is because the extra cost of using this invariant technique is often not worth the extra benefit of using it. To pursue the invariant end of deciding well wisely, we need to consider not only the benefits but also costs of using descriptions of the world.

“Over time, we develop rules for helping us decide which descriptions are best under various conditions. These rules are not perfect. For example, a widely-used rule in modern physics tells us to use classical mechanics to find and solve mechanical problems when the velocities of objects are small relative to the speed of light. However, because this rule ignores the accumulation of small errors over time, it fails in the case in satellite-based global positioning systems. This is the same reason that modern economics fails as a tool for explaining the world. In the case of the satellite-based global position systems, the cause of these errors concerns the slowing of satellite clocks relative to terrestrial clocks. In the case of modern economics, the cause of these errors concerns the creation and use of knowledge.”

was deleted.

Chapter 3, *Judging Descriptions of the World*, first paragraph

“The thermodynamically irreversible transition of any microscopic object from acting like a wave to acting like a particle can potentially affect any other microscopic object in the world; hence we can neither predict nor explain with absolute certainty. From a reductionist view, all descriptions of the world are probabilistic. From a holistic view, all descriptions of the world are partial. How do we judge probabilistic/partial descriptions of the world?”

was changed to:

“It is impossible to describe any part of the world completely.²⁰ From a reductionist view, incomplete descriptions of the world are probabilistic. From a holistic view, they are partial. How do we judge probabilistic/partial descriptions of the world?”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“²⁰ In the first section, we saw how the linguistic (logical and conceptual) problems raised by David Hume and W. V. O. Quine create the need to expand the scope of the problem of believing well to the limits imagination. In this section, we also saw how quantum entanglement and deterministic chaotic systems create the need to expand the scope of the problem of believing well to the limits of imagination. From this boundlessly-pragmatic view, both local realism (“modernism”) and local pragmatism (“postmodernism”) are myopic.”

Chapter 3, *Judging Descriptions of the World*, last paragraph, last three sentences

“This is the same reason that modern economics fails as a tool for explaining the world. In the case of the satellite-based global position systems, the cause of these errors concerns the slowing of satellite clocks relative to terrestrial clocks. In the case of modern economics, the cause of these errors concerns the creation and use of knowledge.”

was changed to:

“The cause of these ever-accumulating errors is the failure to account for the slowing of time in satellite inertial frames relative to terrestrial inertial frames. As we shall see, the cause of similar errors in modern economies is the failure of people to choose to pursue the invariant end of deciding well.”

Chapter 3, Conclusion, last paragraph

Changed “pragmatic” to “boundlessly-pragmatic” in the first sentence.

Chapter 4, Sovereignty, first paragraph, first sentence

“In this section, we apply the invariant concept of deciding well to the timeless end of governing ourselves well, which is to say to the endless pursuit of Justice.”

was deleted.

Chapter 4, Sovereignty, last paragraph

Changed “From the invariant view of deciding well, governments” to “Governments” in the first sentence.

Chapter 4, *The Explicit Experiment*, second paragraph

Changed “Arguably,” to “According to most scholars, fellow member of the drafting committee” in the third sentence.

Chapter 4, Liberalism, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**Modern economic** models” to “**These “capitalist”** models” in the second sentence.

Changes in Version 2010.09.20

Preface, first paragraph

Changed “**essay**” to “**book**” and “**thirty**” to “**thirty-two**” in the first sentence.

Preface, fourth paragraph

Changed “**values**” to “**timeless ends**” in the second to last sentence.

Changed “**timeless ends**” to “**ends**” in the last sentence.

Preface, fifth paragraph

“I wrote this **essay** to help people find better problems to solve, particularly those that concern how to prepare for unexpected problems. In the first section, I explain why it is important to distinguish between temporal and timeless ends. I go on to develop a timeless concept of deciding well that is independent of our beliefs and circumstances. In the balance of the essay, I apply this universal, unvarying concept of deciding well to the endless pursuits of living well, believing well, and governing ourselves well.”

was deleted.

Preface, new fifth paragraph

Deleted the phrase “, which serves as the core of a theory of cultural evolution in **people**” from the first sentence.

Preface, new fifth paragraph, last two sentences

“If deciding well were not subject to constraints, there would be neither the need to distinguish between deciding and deciding well, nor the need to learn from experience. Deciding well, so conceived, is also a *self-similar universal invariant*, which is to say that it is useful in pursuing the timeless end of deciding well regardless of the scale of the temporal problem people choose, and useful in pursuing the timeless end of deciding well for all people regardless of their circumstances and beliefs.”

were changed to:

“These constraints concern not only solving temporal problems, but also learning how to solve temporal problems ever better.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, new sixth paragraph, first sentence

Changed “are some universal factors” to “exist universal factors” in the second sentence.

Preface, new seventh paragraph

“Over time, we also collectively learn that we ought to accept the timeless end of deciding well, so conceived, as our publicly proclaimed and practiced ultimate end. We can never be certain of this belief. However, we can aspire to be wise by attempting to disprove it, which we can do by forming a government based upon it. Undertaking this civil research program, like undertaking all other research programs, calls for making a leap of faith. Over time, we learn that we ought to base such leaps of faith upon the ring of truth.”

was deleted.

Preface, new seventh paragraph, first sentence

Changed “economics” to “allocating resources” in the second sentence.

Preface, new eighth paragraph

Changed “invariant” to “timeless” in the second sentence.

Preface, last paragraph

Merged last paragraph into second to last paragraph

Preface, last paragraph, last sentence

“The current debacle may prove to be such an event.”

was replaced by the following paragraphs:

“This simple model of deciding well has as profound implications for how we think about believing well as it does for how we think about allocating resources well. The timeless end of believing well is one of the universal, boundless factors of deciding well. Following this simple model of deciding well, pursuing the timeless end of believing well calls for neither faith in experience per se, nor faith in something that transcends experience, but rather faith in the pursuit of the timeless end of believing well. If we call the endless process of pursuing the timeless end of believing well *science*, the basis of science is science. The whole of science is not, as Albert Einstein famously claimed, a refinement of everyday thinking, but rather the endless process of refining everyday thinking, which includes the process of refining the process of refining everyday thinking.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“One reason to believe that science ought to be an endless process concerns the logical problem of induction. Until we have experienced everything that can be experienced, we can never be certain that the general beliefs we induce from experience are true. On a deeper level, until we have experienced everything that can be experienced, we can never be certain that the concepts we invent to describe the world are the best concepts for describing the world. Consider the belief that all crows are black. The veracity of this belief depends on how we define the concepts we use to form this belief. Imagine that we encounter a new bird that appears to be a non-black crow. We can choose either to call this bird a crow, which would make the belief that all crows that exist are black false, or we can choose to call this bird something other than a crow, which would allow us to continue believing that all crows are black. Further, this uncertainty concerns not only the concepts we use to formulate the belief we are testing, but also the concepts we use to define these concepts, and the concepts we use to define these concepts, and the concepts we use to define these concepts, and so on. For example, the veracity of the belief that all crows are black depends on the meaning of “to be.” Does this concept concern existence in (1) the current state of the world; (2) the history that led from the initial state of the world to the current state, the current state, and all future states accessible from the current state; or (3) the initial state of the world and all possible states accessible from the initial state?

“Another reason to believe that science ought to be an endless process concerns the physical problem that entangled pairs of quantum-level objects create for our ability to explain what happens in part of the world. What makes this especially important is the existence of systems in which the smallest of changes may lead to ever larger changes over time. An event as apparently inconsequential as a butterfly flapping its wings may not only change the weather on a distant continent, but also the planetary structure of a distant solar system.

“A third reason to believe that science ought to be an endless process concerns the practical problem of motivation. If we believe that free will does not exist, we believe that we are not free to choose either what to pursue or how best to pursue it. This belief does not motivate us to decide well, hence to explain what causes sensations of the world. On the other hand, if we believe that free will exists, we believe that we are free to choose what to pursue and how best to pursue it motivates us to decide well, hence to explain what causes sensations of the world. It also calls for us to expand the scope of this endless pursuit to include mental as well as physical objects. These mental objects include mental models of mental objects, hence mental models of mental models of mental objects, mental models of mental models of mental models of mental objects, and so on to infinity.

“From the timeless view of science put forth in this work, deciding well calls for us to find and solve problems well. Models that help us predict sensations of the world help us solve given problems. Models that help us explain sensations of the world help us find problems to solve. The distinction between solving given problems and finding problems to solve depends on the scale of the problem we choose to solve. If we choose the smallest problems we can imagine, we choose to deal with our ignorance of the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

world in the form of uncertain predictions. Today, this is the realm of quantum mechanics. If instead we choose the largest problem we can imagine, which is the problem that contains all other problems, we choose to deal with our ignorance of the world in the form of incomplete explanations. As we shall see, this is the realm of the public sciences. Choosing the best problem to solve is a matter of balancing the costs of these two types of ignorance. These costs depend on the quality of the models we use to predict and explain sensations of the world.

“To improve the quality of the models we use to predict and explain our sensations of the world, we need means of judging these models. The pragmatic means of judging models that we use to predict sensations is to judge how well these models help us solve given problems. The pragmatic means of judging models that we use to explain sensations is to judge how well these models help us find problems to solve.

“From the temporal view of modern science, judging the models that we use to find problems to solve calls for us to judge models for helping us judge these models, judge models for helping us judge models for helping us judge these models, judge models for helping us judge models for helping us judge models for helping us judge these models, and so on to infinity. In contrast, from the timeless view of science put forth in this work, judging these models well calls for us to decide well in pursuing the timeless end of judging models well. Deciding well calls for us to judge both models that help us predict sensations of the world within the realm of the problem we choose to solve and models that explain sensations of the world. This holds true regardless of the size of the problem we choose to solve.

“Students of Western thought may find in this timeless concept of science a synthesis of the Platonic pursuit of knowledge of ideal forms and the Aristotelian pursuit of knowledge of natural forms. Like the Platonic pursuit, the pursuit of knowledge of universal, boundless factors of deciding well involves pursuing knowledge of ideal forms. Unlike the Platonic pursuit, it recognizes that its ideal forms are objects that we can never know completely. Like the Aristotelian pursuit, the pursuit of knowledge of these factors involves replicable patterns of reasoning. Unlike the Aristotelian pursuit, its rules for reasoning include not only rules that bind beliefs together into logical frameworks, but also rules for binding logical frameworks together into a coherent whole. These rules for reasoning concern not only logic but also symmetry.

“The timeless concept of deciding well put forth in this work exhibits two types of symmetry. First, the relations between the universal, boundless factors of deciding well have rotational symmetry. We can picture this symmetry in a diagram that uses line segments to represent the relations between universal, boundless factors of deciding well spaced equally around the circumference of a circle. Second, the pursuit of the timeless end of deciding well has translational symmetry with respect to reference frames defined by beliefs and circumstances. When we expand the problems we face to the limits of imagination, our problems become part of the problem that contains all other problems. The solution to this universal problem, which is pursuing the timeless end of deciding well, is the same for all of us.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From temporal views of science that conflate replicable reasoning and logic, a concept of reasoning that includes both logic and symmetry surpasses rationality. To use a term coined by Douglas Hofstadter to describe his strategy for competing well by cooperating well, it is *superrational*. In contrast, from the timeless view of invariant science, temporal views that conflate reasoning and logic are shortsighted. They concern learning about Plato’s cave for its own sake rather than learning about it in order to learn how best to climb ever upward toward the timeless end and invariant factors of deciding well.”

Chapter 1, Setting Words Aright, last paragraph

Changed “map” to “map **hanging on a wall**” in the third sentence.

Chapter 1, Choosing Frames Well, third paragraph

Changed “using resources **that are useful in deciding well**” to “in using resources” in the last sentence.

Chapter 1, Useful Frames, second paragraph

Changed “**temporal** problem” to “**subordinate** problem” in all (4 occurrences).

Changed “**temporal** problem” to “**subordinate** problem” in the first sentence of the footnote.

Changed “**temporal** problem scale” to “problem scale” in the second sentence of the footnote.

Chapter 1, Useful Frames, last paragraph

Changed “finding a **temporal** problem to solve” to “finding a **subordinate** problem to solve” in the third sentence.

Chapter 1, *The EOQ/RTS Example*, first paragraph

Changed “*rationally*” to “**“rationally”**” and “*wisely*” to “**“wisely”**” in the third sentence.

Chapter 1, Timeless versus Invariant Values, second paragraph

“In discussing temporal and timeless values, we can avoid much tedium and confusion by capitalizing timeless values. Using this convention, (1) **to pursue** the timeless end of **living well is to pursue the Good**; (2) **to pursue** the timeless end of **believing well is to pursue the Truth**; (3) **to pursue** the timeless end of **deciding well is to pursue Wisdom**; and (4) **to pursue** the timeless end of governing ourselves well **is to pursue Justice**. **To many modern readers, this convention will have theistic overtones. Properly conceived, it has religious overtones that may or may not be theistic. As we shall see, we ought to**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

distinguish between ‘theism’ (“belief in the existence of the divine”); ‘religion’ (“the pursuit of linking or re-linking with something greater than ourselves”); and ‘faith’ (“certainty beyond reason”). We ought never to fall into the habit of using the terms ‘theism,’ ‘religion,’ ‘faith’ as synonyms for the zealous pursuit of linking or re-linking with the divine.”

was changed to:

“In discussing temporal and timeless values, we can avoid much tedium and confusion by capitalizing timeless values. Using this convention, *we may call* the timeless end of deciding well *Wisdom*, the timeless end of living well *the Good*, the timeless end of believing well *the Truth*, and the timeless end of governing ourselves well *Justice*. *If we define ‘theism’ to mean* belief in the existence of the divine *and ‘religion’ to mean* the pursuit of linking or re-linking with something greater than ourselves, *this convention has religious overtones that may or may not be theistic.*”

Chapter 1, Timeless versus Invariant Values, third paragraph, last three sentences

“The timeless concept of deciding well includes learning ever more about values. We learn ever more about values by pursuing the timeless end of *deciding well (Wisdom)*. *As we shall see, pursuing the timeless end of deciding well calls for us to pursue the timeless end of* believing well (the Truth).”

was changed to:

“We learn ever more about values by pursuing the timeless end of believing well (the Truth).”

Chapter 1, Timeless versus Invariant Values, fourth paragraph

Changed “a *universal* invariant” to “invariant *with respect to inertial frames*” in the last sentence.

Chapter 1, Timeless versus Invariant Values, ninth through eleventh paragraphs

“Over time, we learn that *some factors of deciding well differ from the others in several important respects*. First, we can never have enough of these factors, which is to say our need for these factors is *boundless*. Second, all people need these factors to decide well, which is to say that these factors are *universal*. Third, we can never possess these factors completely, which is to say our pursuit of these factors is *timeless*. These *boundless, universal, and timeless* factors include the timeless ends of living well (the Good), believing well (the Truth), *and deciding well (Wisdom)*. We need the Good to avoid deprivation, which hinders us from deciding well. We need the Truth to avoid ignorance, which also hinders us from deciding well. *Wisdom is knowledge of how to decide well. We can never have too much knowledge of how to decide well.*”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Over time, we learn that the endless pursuits of all boundless, universal, and timeless factors of deciding well intertwine to form a single endless pursuit. Consider the relation between the pursuit of the Good and the pursuit of the Truth. We pursue the Good by deciding well, which calls for us to pursue the Truth. We pursue the Truth by deciding well, which calls for us to pursue the Good. Thus the pursuit of the Good and the pursuit of the Truth intertwine to form a single pursuit, which we may call *the invariant pursuit of deciding well*. Further, the better we decide, the tighter we intertwine the pursuits of the Good and the Truth. By similar reasoning, all pursuits of **boundless, universal, and timeless** factors of deciding well, **which we may call *invariant factors of deciding well***, intertwine to form the **invariant pursuit of deciding well**. Further, the better we decide, the tighter we intertwine the pursuits of the invariant factors of deciding well.¹³

“Over time, we learn that the timeless end of governing ourselves well (Justice) is a matter of cooperating well in the pursuit of the timeless end of deciding well. We need the help of others to pursue the timeless end of deciding well. We can never cooperate too well with other people, **which includes** people separated from us by great distances or long periods of time. **Today, the idea of cooperating with people separated by great distances is common. However, the idea of cooperating with people separated by long periods is not. The ancient Chinese provide us with a simple model for cooperating over long periods: “The debts that we owe to our ancestors we pay to our descendants.”** Following this model, we can cooperate in deciding well across great distances and long periods with the universal moral rule: “The debts we cannot pay to whom they are due we pay to others by deciding well.” This includes the debts that we owe to those who **provided us with the knowledge that we use freely**. Hence, the timeless end of governing ourselves, which is **to say** the timeless end of cooperating well, is an **invariant** factor in deciding well.”

“¹³ Pursuing the timeless end of deciding well benefits greatly from the ability to think in many frames simultaneously. For a witty explanation of the evolution of this ability, see Stewart, I. and Cohen, J., *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997).”

were changed to:

“Over time, we learn that **there exist universal factors of deciding well that we can never have in excess**. These universal, boundless factors include the timeless ends of living well (the Good) **and** believing well (the Truth). We need the Good to avoid deprivation, which hinders us from deciding well. We need the Truth to avoid ignorance, which also hinders us from deciding well.

“Over time, we learn that the endless pursuits of all universal, boundless factors of deciding well intertwine to form a single endless pursuit. Consider the relation between the pursuit of the Good and the pursuit of the Truth. We pursue the Good by deciding well, which calls for us to pursue the Truth. We pursue the Truth by deciding well, which calls for us to pursue the Good. Thus the pursuit of the Good and the pursuit of the Truth intertwine to form a single pursuit, which we may call **the pursuit of Wisdom**.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

The better we decide, the tighter we intertwine the pursuits of the Good and the Truth **into the pursuit of Wisdom**. By similar reasoning, all pursuits of universal, **boundless** factors of deciding well intertwine to form the **pursuit of Wisdom**. The better we decide, the tighter we intertwine the pursuits of these factors of deciding well **into the pursuit of Wisdom**.

“Over time, we learn that the timeless end of governing ourselves well (Justice) is a matter of cooperating well in the pursuit of the timeless end of deciding well. We need the help of others to pursue the timeless end of deciding well. We can never cooperate too well with other people, including people separated from us by great distances or long periods of time. Hence, the timeless end of governing ourselves **well**, which is **also** the timeless end of cooperating well, is a **universal, boundless** factor of deciding well.

“The ancient Chinese provide us with a simple model for cooperating over great distances and long periods: “The debts that we owe to our ancestors we pay to our descendants.” Extending this model to all people, we can cooperate well across great distances and long periods with the universal moral rule: “The debts we cannot pay to whom they are due we pay to others by deciding well.” This includes the debts that we owe to those who provided us with the knowledge that we use freely. Following this rule, we ought to pursue the timeless end of deciding well regardless of our current beliefs and circumstances. When we expand the problems we face to the limits of imagination, our problems become part of the problem that contains all other problems. The solution to this universal problem, which is pursuing the timeless end of deciding well, is the same for all of us. In the language of mathematics, the pursuit of the timeless end of deciding well is invariant with respect to reference frames based on beliefs and circumstances. Further, the universal, boundless factors of deciding well are invariant with respect to reference frames based on beliefs and circumstances.

“Consider how we can use the invariant frame of deciding well to help us choose the best frame for judging how well we govern ourselves. From within each frame we consider, the frame we are in looks to be the best frame. We find ourselves in a mental hall of mirrors from which analytical techniques cannot help us escape. Twentieth-century philosopher John Rawls provides us with a timeless technique that can help us reason our way out of this quandary. He asks us to imagine what we should choose if we were ignorant of the circumstances of our birth.¹³ For this imagined original position of ignorance to produce a *completely just* end, we must consider to what end we should want to guide people if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of what species we will be and into what era we will be born. From behind this veil of complete ignorance, we should want all people to pursue the timeless end of revering life well.¹⁴ We pursue this timeless end by deciding well.”

¹³ Rawls, John, *A Theory of Justice* (Cambridge, MA: The Belknap Press of Harvard University, 1971), chapter III.”

¹⁴ More accurately, this thought experiment calls for us to imagine what we would want if before we were born we had complete knowledge of everything except knowledge of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

the circumstances of our birth or births. For more on revering life well, see Appendix B.”

Chapter 1, Temporal versus Invariant Ends, last paragraph

Inserted the paragraph:

“Over time, we learn that the more our beliefs about pursuing the invariant end of deciding well fit together into a coherent whole and the better the problem we are considering fits this coherent whole, the more likely the problem we are considering is a good problem to solve. We may call the endless process of thinking deeply about how our beliefs about pursuing the invariant end of deciding well fit together into a coherent whole and of thinking deeply about how the problems we are considering fit this coherent whole the endless process of contemplating well. So conceived, the timeless end of contemplating well is an invariant factor of deciding well. We may call this timeless end *Beauty*.”

Changed “(the Good), believing well (the Truth), and governing ourselves well (Justice)” to “, believing well, governing ourselves well, and contemplating well” in the last sentence.

Chapter 1, Boundless Pragmatism, entire section

“Boundless Pragmatism

Invariant values are tools for helping us to choose among a nearly infinite number of nearly infinite paths. Thinking deeply about these paths calls for us to leave behind our current mental models for explaining the world. In doing so, we become as sailors venturing beyond landfall. Fortunately, we can use more general versions of two mathematical concepts to help us navigate these potentially maddening seas.¹³

“From the frame of mathematics, there is a set of numbers that resembles the set of invariant factors of deciding well. This is the set of numbers that are both *transcendental* and *recursive*. These numbers are transcendental in that they are not algebraic, which is to say that they are not the solution of any integer polynomial. They are recursive in that they are the solution of at least one recursive process, which is to say they are the result of at least one endlessly repeating cycle of steps in which the result of one cycle becomes the basis for the next cycle.

“From the invariant frame of deciding well, we can imagine a set of transcendental recursive concepts. The members of this set of concepts are transcendental in that they are concepts that we can never know completely. They are recursive in that we can theoretically know them by means of at least one recursive process.

“The mathematical constant π is a transcendental recursive concept. It is transcendental in that we can never know it completely. It is recursive in that we can theoretically know it by means of a recursive process. Similarly, Wisdom is a transcendental recursive

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

concept. Wisdom is transcendental in that we can never know it completely. Wisdom is recursive in that we can theoretically know it by means of the recursive process of deciding well.

“We may think of the recursive processes by which we come to know ever more about transcendent recursive concepts as having three elements. The first of these elements is the *recursive process* itself. In pursuing π , the recursive process is any one of many means of computing π . In pursuing Wisdom, the recursive process is the process of deciding well.

“The second of these elements is the *transcendental end*. The transcendental end is complete knowledge of the transcendental recursive object. In pursuing π , the transcendental end is the ratio of the circumference of a Euclidean circle to its diameter. The form of this transcendental end is a number. In pursuing Wisdom, the transcendental end is the knowledge that allows a perfectly wise being to decide perfectly well. The form of this transcendental end is whatever form of knowledge is most useful to a perfectly wise being in deciding well.

“The third of these elements is the *timeless end*. The timeless end is that which we seek during the recursive process. In pursuing π , the timeless end is ever better approximations of π . The form of this timeless end is a number. In pursuing Wisdom, the timeless end is ever better approximations of Wisdom. The form of this timeless end is whatever form of knowledge is most useful to us as we pursue the timeless end of deciding well. As we shall see, this form is a set of timeless descriptions of the world with at least one description for each invariant factor of deciding well, which we use to help us find problems to solve, and a set of temporal descriptions of the world, which we use to help us solve temporal problems. These descriptions ought to be as simple as possible, but not simpler; and the sets of descriptions ought to be as small as possible, but not smaller.¹⁴”

“¹³ We can see the effects of trying to navigate uncharted portions of these potentially maddening seas in the personal life of mathematician Georg Cantor. Although his efforts to chart these seas eventually drove him mad, he provided us with tools for navigating these waters, which include set theory and transfinite numbers. For more on this, read Amir Aczel’s book, *The Mystery Of The Aleph: Mathematics, the Kabbalah, and the Search for Infinity* (New York: Four Walls Eight Windows, 2000).”

“¹⁴ The inspiration for this belief about the timeless end of deciding well was Albert Einstein’s belief about what he called the objective truth as expressed in his book, *The Evolution of Physics from Early Concepts to Relativity and Quanta* (New York: Simon and Schuster, 1966, p. 31): “Physical concepts are free creations of the human mind, and are not, however it may seem, uniquely determined by the external world. In our endeavor to understand reality we are somewhat like a man trying to understand the mechanism of a closed watch. He sees the face and the moving hands, even hears its ticking, but he has no way of opening the case. If he is ingenious he may form some picture of a mechanism which could be responsible for all the things he observes, but he

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

may never be quite sure his picture is the only one which could explain his observations. He will never be able to compare his picture with the real mechanism and he cannot even imagine the possibility or the meaning of such a comparison. But he certainly believes that, as his knowledge increases, his picture of reality will become simpler and simpler and will explain a wider and wider range of his sensuous impressions. He may also believe in the existence of the ideal limit of knowledge and that it is approached by the human mind. He may call this ideal limit the objective truth.””

was deleted.

Chapter 1, *Substitutes for Wisdom*, entire section

“*Substitutes for Wisdom*

Studying what we can know and communicate about π can provide us with insights into what we can know and communicate about Wisdom. We can never know the value of π . The most we can know is either an approximate value of π or a means of computing π . Both of these substitutes for π have disadvantages.

“A major disadvantage of using an approximate value of π is that using it well calls for us to know under what circumstances it is useful in deciding well. For example, the approximate value of $22/7$ is useful for some problems but not all problems. By similar reasoning, a major disadvantage of using approximations of Wisdom is that using them well calls for us to know under what circumstances they are useful in deciding well. For example, a decision rule that tells us always to tell the truth is wise for some situations but not for all situations. Telling a murderer where he can find his next victim is not wise.

“A major disadvantage of using a means of computing π is our limited ability to use this means. A calculus formula for computing π is useless to a person without knowledge of calculus; an arithmetic series for computing π is useless to a person without knowledge of arithmetic; and a geometric means of computing π is useless to a person without knowledge of geometry. By similar reasoning, a major disadvantage of using the means of pursuing Wisdom is our limited ability to decide well.”

was deleted.

Chapter 1, *The Boundless Problem of Refining Knowledge*, entire section

“*The Boundless Problem of Refining Knowledge*

When we study the beliefs of others, our beliefs about their beliefs can affect their beliefs, which can in turn affect our beliefs about their beliefs, and so on to infinity. This, combined with the inexhaustibility of knowledge, the problem of choosing frames, and the problem of induction point to the need to expand the problems we face to the limits of imagination, hence to a universal problem that contains all other problems. We can address this universal problem by pursuing the timeless end of deciding well.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“This radically different strategy for refining knowledge calls for us to confront the modern belief that descriptions of the world that help us predict well also help us explain well. This delusion arises from the modern belief that descriptions of the world that both predict well and explain well are part of the Truth rather than currently useful tools for pursuing the invariant factors of deciding well.

“We use descriptions of the world to predict and explain. A prediction is knowledge of what is likely to happen. An explanation is knowledge of why things happen as they do.¹⁵ Predictions and explanations help us decide well in different ways. Predictions help us to assign probabilities to uncertain events, which helps us to evaluate alternatives. Explanations help us to understand how our actions may change the world, which helps us to formulate alternatives. Better predictions help us better solve temporal problems, and better explanations help us find better problems to solve. Better predictions help us become more *efficient*, and better explanations help us become more *effective*.

“When we use descriptions of the world that predict well but do not explain well to find problems to solve, we embed mistakes in our networks of knowledge-in-use. These embedded mistakes tend to hinder our progress toward the timeless end of deciding well. Releasing these embedded mistakes creates turbulence in the flow of resources. We can see both of these effects in the EOQ/RTS example. Companies with modern production systems learn to produce well less quickly than those companies with learning-based systems. Over time, companies with modern production systems will create turbulence by shutting down these systems.”

“¹⁵ Some stories predict better than they explain. Quantum mechanics provides incredibly accurate statistical predictions of subatomic events without explaining their causes equally well. Rather than better means of predicting what quantum mechanics predicts, physicists today seek to explain what links the subatomic to the cosmological. Other stories explain better than they predict. Chaos theory provides a means of explaining *deterministic chaotic systems* without being able to predict these systems equally well. Predicting the long-term “weather” (trajectory in phase space) calls for knowing initial conditions with infinite precision, which is impossible. The best we can hope to do is to predict the “climate” (trajectory pattern in phase space).”

was deleted.

Chapter 1, Overview, all paragraphs

“In this **section**, we saw how the invariant concept of deciding well can help us pursue the invariant end of deciding well, and so all of the invariant factors of deciding well. In the remaining **three sections**, we will see how this invariant concept can help us pursue the timeless ends of living well, believing well, and governing ourselves well. Each of these **sections** presents a different aspect of the invariant process of deciding well.

“The section on living well begins with a brief discussion of how we ought to use both temporal and invariant tools in our pursuit of the timeless end of living well. The rest of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

the section defines invariant alternatives to the modern economic concepts of wealth, consumption, trade, production, taxation, and profit. These often striking juxtapositions not only help us see the world from the timeless frame of living well, but also highlight the difference between tools meant to help us solve given problems and tools meant to help us find problems to solve.

“The section on believing well begins with a discussion of contemplating well. Next is a discussion of the invariant concept of science as the process of refining everyday thinking, which includes an argument supporting the claim that what we currently call natural science is a special case in which we choose to ignore the possible roles that consciousness and free will play in the endless process of refining everyday thinking. The section ends with a discussion of the endless process of refining our beliefs about the invariant process of deciding well.

“The section on governing ourselves well explains how we may test the system of beliefs that supports the invariant process of deciding well. The hypothesis of this experiment is the claim that this invariant system of beliefs can help us govern ourselves better than any other. The section ends with a brief discussion of how this system of beliefs differs from modern and classical liberalism.”

were changed to:

“In this **chapter**, we saw how the invariant concept of deciding well can help us pursue the invariant end of deciding well, and so all of the invariant factors of deciding well. In the remaining **four chapters**, we will see how this invariant concept can help us pursue the timeless ends of living well, **contemplating well**, believing well, and governing ourselves well. Each of these **chapters** presents a different aspect of the invariant process of deciding well.”

Chapter 2, Invariant Tools for Living Well, last paragraph

Changed “**section**” to “**chapter**” in the second sentence.

Chapter 2, Profit, last paragraph

“From the classical liberal view, people are free to spend the profits they earn as they please. **From the modern liberal view, people owe part of their profits to society for the use of socially-owned resources. According to some modern liberals, people owe up to ninety percent of their incomes to society to pay for the use of knowledge that they use freely.⁶ As we shall see, from the timeless liberal view, we owe debts to those people who created the knowledge we use freely, and to the whole of life for providing us with the natural resources we use freely. We owe these debts to the stewards of life and to life itself, rather than to the stewards of society and to society itself. We pay these debts by deciding well.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Alperovitz, G. and Daly, L., *Unjust Deserts: How the Rich Are Taking Our Common Inheritance and Why We Should Take It Back* (New York: The New Press, 2008).”

was changed to:

“From the classical liberal view, people are free to spend the profits they earn as they please. **In contrast**, from the invariant view of deciding well, we owe debts to those people who created the knowledge we use freely, and to the whole of life for providing us with the natural resources we use freely. We pay these debts by deciding well.”

“**From the modern liberal view, people owe part of their profits to society for the use of socially-owned resources. According to modern liberals Gar Alperovitz and Lew Daly (*Unjust Deserts: How the Rich Are Taking Our Common Inheritance and Why We Should Take It Back*, New York: The New Press, 2008), people owe up to ninety percent of their incomes to society to pay for the use of knowledge that they use freely. Ought we to pay the debts we owe to the stewards of society in money or to the whole of life in good deeds?**”

Chapter 2, The Need for a Science of Deciding Well, entire section

“**The Need for a Science of Deciding Well**

In 1776, Adam Smith’s example of a pin factory showed the wisdom of pursuing the virtuous circle of the division of labor and the expansion of market size.⁷ Today, Toyota’s strategy for learning shows the wisdom of pursuing the virtuous circle of good people and good products. Good people, deciding well, produce good products. Good products, used well, produce good people. Given the success of this strategy, we ought to learn more about good people and good products. To do so well, we need **an invariant concept of science. The next section describes this concept.**”

was changed to:

“**A Strategy for Learning Well**

In 1776, Adam Smith’s example of a pin factory showed the wisdom of pursuing the virtuous circle of the division of labor and the expansion of market size.⁷ Today, Toyota’s strategy for learning shows the wisdom of pursuing the virtuous circle of good people and good products. Good people, deciding well, produce good products. Good products, used well, produce good people. Given the success of this strategy, we ought to learn ever more about good people and good products. To do so well, we need **to pursue the invariant end of deciding well.**”

Chapter 3, Pursuing the Ring of Truth, entire section

“**Pursuing the Ring of Truth**

There is an ancient belief that equates truth with beauty. Nineteenth-century poet John Keats expressed this belief in the closing lines of his poem, “Ode on a Grecian Urn”:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Beauty is truth, truth beauty, — that is all ye know on earth, and all ye need to know.”¹

“Combining this ancient belief with the invariant concepts of pleasure and joy yields an invariant concept of beauty: *beauty is the quality of objects whose contemplation yields not only pleasure but also the joy that comes from improving how well our beliefs fit together into a coherent whole that is useful in living ever more wisely.*

“To give us pleasure, an activity must not be too easy or too hard. Too easy an activity bores us; too hard an activity overwhelms us. When the activity is contemplation, the object of contemplation must not be too simple or too hard to contemplate. Contemplating too simple an object bores us; contemplating too hard an object overwhelms us. Between what is boring and what is overwhelming is a level of difficulty that allows us to lose ourselves in contemplation. As we learn more, objects that once were too hard may bring us pleasure; and objects that once brought us pleasure may become boring. Learning about the structure of classical music may turn Beethoven’s symphonies from being overwhelming to being beautiful. It may also turn pop music from being beautiful to being boring.

“To give us joy, an activity must improve our state of being. When the activity is contemplation, the object of contemplation must be just novel enough for us to learn from it. If the object is not novel or too novel we will not learn from it. As we learn more, objects that once brought us joy become mundane and objects that were once too novel become beautiful. Before we learn calculus, Newton’s theory of gravity is too novel to bring us joy. After we learn calculus, it has the potential to bring us joy. With use, it becomes just another tool.

“**The Elephant in the Room**”

One of the most beautiful things to emerge from pursuing the invariant end of deciding well is the relation between the invariant factors of deciding well and the values that people claim to seek when they seek to link or re-link with something infinitely greater than themselves.

“The essential biological explanation of this coincidence is simple and straightforward. We evolved to have a religious need to become a part of something infinitely greater than ourselves. Seeking to satisfy this need is useful in securing the best chances of survival for our offspring and ourselves. We seek to satisfy this need by deciding well. We collectively refine our means of deciding well by deciding well over time. Deciding well and our understanding of deciding well co-evolve.

“The essential theological explanation of this coincidence is as simple and straightforward. The Divine created us with the need to seek the Good, the Truth, Justice, Wisdom, and Beauty. We pursue these transcendental values by deciding well. We collectively refine our means of deciding well by deciding well over time. Deciding well and our understanding of deciding well co-evolve.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Although these two essential explanations of this coincidence differ in their assumptions, they share the same means. Regardless of what core set of currently untestable beliefs, what personal faith, we choose to help us find the best problem to solve, the timeless end of believing well is the same for all of us. We are all as blind men seeking to know an infinitely large elephant.

“*Beauty as a Guide to Believing Well*”

From the invariant frame of deciding well, pursuing the timeless end of believing well (the Truth) calls for us to pursue all of the invariant factors of deciding well (the Good, Wisdom, Justice, etc.). This is a benefit, not a burden. It provides us with a more certain way of testing problems before we attempt to solve them. If a problem is consistent with all of our beliefs about the invariant factors of deciding well, then it rings true. We have found a beautiful problem to solve.²

“Consider how we can use the invariant frame of deciding well to help us choose the best frame for judging how well we govern ourselves. From within each frame we consider, the frame we are in looks to be the best frame. We find ourselves in a mental hall of mirrors from which analytical techniques cannot help us escape. Twentieth-century philosopher John Rawls provides us with a timeless technique that can help us reason our way out of this quandary. He asks us to imagine what we should choose if we were ignorant of the circumstances of our birth.³ For this imagined original position of ignorance to produce a *completely just* end, we must consider to what end we should want to guide people if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of what species we will be and into what era we will be born. From behind this veil of complete ignorance, we should want all people to pursue the timeless end of revering life well.⁴ We pursue this timeless end by deciding well.

“We can never be certain that the invariant frame of deciding well is the best frame for finding problems to solve. We can either pretend to be certain that it is or is not the best frame for finding problems to solve, or aspire to be wise by seeking to disprove that it is not the best frame for finding problems to solve, which we do by acting as if it is the best frame for finding problems to solve. Undertaking this research program calls for making a leap of faith. Over time, we learn to base such leaps of faith upon the ring of truth.”

¹ Keats, John “Ode on a Grecian Urn” in *The Oxford Book of English Verse 1250–1900*, A. T. Quiller-Couch, ed. (Oxford: Clarendon, 1919), reprinted in Bartelby.com, <<http://www.bartelby.com/101/625.html>> (15 September 2010).”

² The problem of defining excellence in choosing frames is infinitely deep, but so too is the invariant means of addressing this problem. In defining the concept of excellence in choosing frames, we must choose a frame. To choose this frame, we must choose a frame. To choose this frame, we must choose a frame. And so on to infinity. The best frame for choosing frames is the frame that best helps us pursue the timeless end of deciding well. The best frame for choosing this frame is the frame that best helps us pursue the timeless end of deciding well. The best frame for choosing this frame is the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

frame that best helps us pursue the timeless end of deciding well. And so on to infinity. Regardless of how many times we repeat this cycle, the best frame for choosing frames is the frame that best helps us pursue the timeless end of deciding well.”

“³ Rawls, John, *A Theory of Justice* (Cambridge, MA: The Belknap Press of Harvard University, 1971), chapter III.”

“⁴ More accurately, this thought experiment calls for us to imagine what we would want if before we were born we had complete knowledge of everything except knowledge of the circumstances of our birth (or births). For more on revering life well, see Appendix B.”

was deleted.

Chapter 3, Refining Everyday Thinking, third paragraph

Changed “**Again, we**” to “**We**” in the first sentence.

Chapter 3, Refining Everyday Thinking eleventh paragraph

“From the modern view of believing well, science concerns what the producers of knowledge are able to supply under current constraints. In contrast, from the invariant view of deciding well, science concerns not only what we are able to supply, but also what we need to decide well: **We can never solve the problem of believing well. However, we can address it. In the words of Dwight Eisenhower, “If a problem cannot be solved, enlarge it.” Enlarging the problem of believing well to the limits of imagination calls for considering what we need to believe well. These needs include the Good, Wisdom, Justice, and Beauty.**”

was changed to:

“From the modern view of believing well, science concerns what the producers of knowledge are able to supply under current constraints. In contrast, from the invariant view of deciding well, science concerns not only what we are able to supply, but also what we need to decide well. These needs include the **invariant factors of deciding well.**”

Chapter 3, Refining Everyday Thinking, last paragraph

Changed “**the timeless end of contemplating well (Beauty), and so the timeless ends of living well (the Good), believing well (the Truth), deciding well (Wisdom), and governing ourselves well (Justice)**” to “Beauty, and so the Good, the Truth, Wisdom, and Justice” in the last sentence.

Chapter 3, *Pursuing the Truth Wisely*, title and first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Pursuing the Truth Wisely

As we saw in the EOQ/RTS example, temporal views tend to blind us to timeless ends. In the case of believing well, the modern, temporal view tends to blind us to **the timeless end of believing well (the Truth)**, and so to **the timeless ends of living well (the Good), deciding well (Wisdom), governing ourselves well (Justice), and contemplating well (Beauty).**”

were changed to:

“As we saw in the EOQ/RTS example, temporal views tend to blind us to timeless ends. In the case of believing well, the modern, temporal view tends to blind us to the Truth, and so to the Good, Wisdom, Justice, and Beauty.”

Chapter 3, *Invariant Academic Fields*, last paragraph

“The arts would include all fields that aim at the ring of Truth rather than the Truth itself. Like the humanities, the arts would include what human beings create. Unlike the humanities, the arts aim to help us pursue ~~the timeless end of contemplating well (Beauty)~~, hence the **timeless ends of living well (the Good), believing well (the Truth), deciding well (Wisdom), and governing ourselves well (Justice).**”

was changed to:

“The arts would include all fields that aim at the ring of Truth rather than the Truth itself. Like the humanities, the arts would include what human beings create. Unlike the humanities, the arts aim to help us pursue Beauty, hence the Good, the Truth, Wisdom, and Justice.”

Chapter 3, *Three Approaches to Constraints*, entire section

Three Approaches to Constraints

From the invariant view of deciding well, deciding well calls for us to think beautifully. The concept of thinking beautifully will likely seem strange to most modern readers. This is in large part due to the modern habit of confusing reality with our mental maps of reality. We saw this in the EOQ example, in which modern managers confused the EOQ model with reality. We can also see it in the claim that we can compute π .

“From the frame of mathematics, π is *computable*, which is to say that we can program all of the steps for computing π into a machine that does nothing more than follow logical instructions. In contrast, from the invariant frame of deciding well, π is not computable. The false claim that π is computable arises from reducing the actual problem of computing π to a theoretical problem of computing π .

“Imagine giving the greatest scientific minds of 1776 the task of computing the value of π to one trillion (10^{12}) decimal places. The most likely result would be a description of the best tool for computing π in 1776 and the explanation that computing π to one

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

trillion decimal places was possible in theory but impossible in practice. No one in 1776 imagined what we currently call supercomputers.¹¹

“Now imagine giving the greatest scientific minds of today the task of computing π to one googol (10^{100}) decimal places. Based on how they respond to this challenge, these people will likely fall into one of two basic groups. The first group will report how computing π to one googol decimal places might be done using currently existing or imagined tools. The second group will report that it is currently impossible to imagine what tools will first make computing π to one googol decimal places possible.¹²

“From the invariant frame of deciding well, there is a third group. This group will report that the best means of computing π to one googol decimal places is to pursue the invariant end of deciding well, hence to pursue the virtuous circle of good people and good products. Over time, pursuing this virtuous circle will yield general purpose computing tools capable of computing π to far beyond one trillion decimal places.

“These three responses to constraints we currently face in computing π suggest three distinct ways of thinking about policymaking. The first way suggests that policymakers ought to promote solutions to problems based on current or imagined knowledge. From this view, excellence in means concerns *efficiency at solving given problems*. We may call this the *engineering approach to policymaking*. The second way suggests that policymakers ought to leave the problem of overcoming constraints to people to work out for themselves. From this view, excellence in means concerns *fitness relative to the current state of an ever-changing environment*. We may call this the *biological approach to policymaking*. The third way suggests that policymakers ought to promote the invariant process of deciding well. From this view, excellence in means concerns *willingness and ability to pursue the invariant end of deciding well*. We may call this the *invariant approach to policymaking*.

“Associated with each of these three ways of thinking about policymaking is a distinct way of thinking about public order. From the engineering view, the role of policymakers is to find and solve public problems. The way policymakers define the problem and its solution provides them with a concept of order. In addressing their chosen problem and solution, policymakers impose their sense of order on the world. From this view, increasing public order is always good.

“From the biological view, the role of policymakers is to promote an environment that helps people find and solve problems that hinder them from increasing their ability to survive and thrive. Here, public order concerns the freedom of people to act on their current beliefs about how best to survive and thrive. Too much order shuts down the experimentation needed to increase fitness. Too little order also shuts down the experimentation needed to increase fitness. The best environment for increasing fitness calls for neither too much nor too little order. From this view, increasing public order is good when there is too little order and bad when there is too much order.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the invariant view, the role of policymakers is to promote an environment that helps people find and solve problems that hinder them from increasing their ability to survive and thrive. This goal of surviving and thriving is the same as that of the biological view. The difference is that policymakers understand that increasing our collective ability to survive and thrive involves improving our individual ability to pursue the invariant end of deciding well. From this view, increasing *temporal public order* may be good or bad, but increasing *invariant public order* is always good.”

“¹¹ Computer scientists Kanada, Ushio, and Kuroda computed pi to over 1.24 trillion decimal places in December 2002. See the Wolfram MathWorld entry on π digits <<http://mathworld.wolfram.com/PiDigits>> (26 August 2009).”

“¹² According to Thomas Sowell, when confronted with the complexities of life, those in the first group will tend to put their faith in the wisdom of experts and those in the second group will tend to put their faith in the wisdom of crowds, especially in the accumulated wisdom of the ages handed down to us in the form of language, culture, case law, and economic relations. For more on this see Thomas Sowell, *A Conflict of Visions: Ideological Origins of Political Struggles* (New York: William Morrow, 1987).”

was deleted.

Chapter 3, *Zero Public Entropy*, entire section

“*Zero Public Entropy*

Liquids that undergo phase changes as they become ever more fluid lie outside of our everyday experience. A dramatic example of such a liquid is that of the isotope of helium that has two neutrons and two electrons (helium-4). Helium-4 atoms are objects subject to quantum effects having integer spin, which physicists call bosons. Unlike objects subject to quantum effects having non-integer spin, which physicists call fermions, more than one boson can occupy the same quantum state. Statistically, this is unlikely to happen unless bosons enter their lowest energy state, which physicists call their *ground state*. As the temperature approaches absolute zero (0 degrees Kelvin), an ever larger number of ⁴He atoms enter their ground state. At 2.172 degrees Kelvin, a large enough percentage of helium-4 atoms enter this state for the liquid to suddenly change from being only slightly more fluid than classical physics predicts to being much more fluid than classical physics predicts. In other words, liquid helium suddenly changes from being a fluid (Helium I) to a superfluid (Helium II).

“One lesson that we can learn from studying liquids like helium-4 is the usefulness of the concept of entropy in pursuing transcendental ends. Entropy is a measure of the amount of potentially available useful resources of a given type in an object. In modern thermodynamics, entropy is a measure of the potentially useful energy resources in a part of the world isolated from other parts of the world.¹³ We pursue the transcendental end of *absolute zero temperature* in the isolated part of the world by removing useful energy from it. In invariant decision science, entropy is a measure of the potentially

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

available non-knowledge wealth (resources useful in deciding well) in the process of deciding well. We pursue the transcendental end of *zero public entropy* by removing non-knowledge wealth from the process of deciding well.¹⁴

“We can use the concept of zero public entropy to help us find problems to solve. As we saw in the EOQ example, the concepts we use to frame our problems tend to blind us to finding better problems to solve. In the team cycling example above, one such blinder is the association of “cycling” with “bicycling.” This association tends to blind us to possibilities for substituting knowledge for non-knowledge resources in ways that would violate our concept of bicycling. These possibilities include regenerative breaking, boosting motors, and automated steering. A strategy based on lowering public entropy, which is to say a strategy based on removing ever more non-knowledge resources useful in deciding well from the endless process of deciding well, would reveal this problem.

“A more subtle blinder in the team cycling example is the false belief that we can separate the problem of cycling well from the problem of deciding well. For a team of cyclists to take a truly invariant approach to constraints, its solution to the problem cycling well must be part of the solution to the problem of deciding well. For this to be true, being part of the team must be something every team member needs to do in order to decide well rather than simply something every team member wants to do. Again, a strategy based on lowering public entropy, which is to say a strategy of removing ever more non-knowledge resources useful in deciding well from the process of deciding well, would reveal this problem. Here, we see how lowering public entropy creates a problem whose solution does not fit within the bounds of our chosen problem of cycling well. In general, lowering public entropy reveals not only problems whose solutions fall within the bounds of our chosen problem, but also problems whose solutions surpass the bounds of our chosen problem, thereby overturning the belief system that led us to choose the problem we chose. We may call the problems whose solutions fall within the bounds of our chosen problem *normal problems* and those that surpass the bounds of our chosen problem *revolutionary problems*.”

“¹³ Zero thermodynamic entropy is a transcendental object, which is to say something that we can define but can never achieve. To achieve zero thermodynamic entropy in a part of the world we would need to lower the temperature of that part of the world to absolute zero temperature. Lowering the temperature to absolute zero temperature in a part of the world calls for completely isolating that part of the world from the rest of the world, which is impossible.”

“¹⁴ Zero public entropy is the transcendental end of the process of inducing the creation of knowledge useful in deciding well, hence in governing ourselves well. As such, it is the process-of-deciding-well in which it is not possible to make any person behind the veil of complete ignorance better off. Students of modern economics may recognize this as the invariant equivalent of the state-of-the-world in which it is not possible to make one person better off without making another person worse off (Pareto optimality). For more on the process of inducing the creation of knowledge, see Appendix A.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Chapter 3, *The Decision Model Interpretation of Quantum Mechanics*, entire section

“The Decision Model Interpretation of Quantum Mechanics

Another lesson that we can learn from studying liquids like helium-4 is that we can use the knowledge of what happens as we approach such natural boundaries as absolute zero temperature to help us understand subtle changes that happen far from these natural boundaries. By studying what happens in extreme cases, we can gain a deeper understanding of our everyday world. By studying what happens as we approach the transcendental end of absolute zero temperature, we may refine our beliefs about how what happens at the microscopic level of quantum mechanics affects what happens on the macroscopic level of the true sciences. Similarly, by studying what happens as we approach the transcendental end of absolute zero public entropy, we may refine our beliefs about how what happens on the microscopic level of quantum mechanics affects what happens on the macroscopic level of the public sciences.

“Although quantum mechanical models provide us with incredibly accurate statistical predictions about what will happen on the microscopic level, it does not provide us with exact predictions about what will happen on this level. This uncertainty is due to two strange behaviors of objects on this level. First, these objects can act either like waves or like particles. Second, pairs of these objects may become entangled in such a way that changing the state of one object instantaneously changes the state of the other object regardless of how distant the other object is. Rigorous empirical testing over many decades has failed to disprove the existence of these two strange behaviors.

“For more than seven decades physicists have been trying to interpret the mathematical models of quantum mechanics in ways that ring true with what they believe they know about causation on the macroscopic level. Most of these interpretations fall into one of three basic categories. The first of these basic categories contains interpretations that claim we should not waste resources trying to explain how objects at this level behave. We may call this the *Copenhagen interpretation* category. The second of these categories contains interpretations that claim that in time we will be able to find currently hidden variables that explain how objects at this level behave. We may call this the *hidden-variables interpretation* category. The third of these categories contains interpretations that claim that every possible way that an object can transition irreversibly from acting like a wave to acting like a particle actually happens. When one of these irreversible events happens, the world¹⁵ splits into a world in which the event occurs and into another world in which the event does not occur. Following this logic, everything that could possibly have happened since the beginning of time has actually happened. We may call this the *many worlds interpretation* category.

“We can use the model of a decision tree¹⁶ to imagine how to interpret quantum mechanics in a way that is most useful in pursuing the invariant end of deciding well.¹⁷ We may think of all people seeking to decide perfectly as a single public entity seeking to decide perfectly. This suggests an interpretation of quantum mechanics that resembles

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

a temporal mirror image of the many worlds interpretation. Rather than an ever expanding number of actual parallel worlds that make up the universe, there exists an ever shrinking number of currently possible future states-of-the-world that make up a single world. This single world consists of (1) a sequence of once current states-of-the-world, (2) a current state-of-the-world, and (3) a nearly infinite set of currently possible states-of-the-world. In other words, it consists of a past, a present, and a nearly infinite number of possible futures. We may call this forward-looking, boundlessly-pragmatic approach to quantum mechanics the *decision tree interpretation*.

“From the modern view of physics, the decision tree interpretation of quantum mechanics appears to ignore such things as constraints on deciding well imposed by relativity theory and information theory. In contrast, from the invariant frame of decision science, the decision tree interpretation sacrifices details about the world as we currently understand it in order to consider what we might learn. When we expand the problem of explaining quantum mechanics based on what we currently know about physics to the problem of explaining quantum mechanics based on all that can be known about the world, we sacrifice details about what we currently know about physics. Among these details are constraints on deciding well that concern the transmission and processing of information imposed by relativity theory and information theory. These details disappear into uncertain event nodes in decision trees. This is consistent with the purpose of decision tree models, which is to help us find and solve problems within the domain of public science.

“For a problem that falls within the domain of quantum mechanics, we ought to think like engineers, which is to say we ought to use the tools of quantum mechanics to solve the problem. For a problem that falls within the domain of modern physics, we ought to think like modern physicists, which is to say we ought to seek the truth within the domain of modern physics. For a problem that falls outside the domain of modern physics but within the domain of true science, we ought to think like true scientists, which is to say we ought to pursue the timeless end of believing well without regard for the other invariant factors of deciding well. For a problem that falls outside the domain of true science but within the domain of public science, we ought to think like public scientists, which is to say we ought to pursue the timeless end of believing well by pursuing all of the invariant factors of deciding well.¹⁸

“Consider the problem of whether to invest in a research program that has a goal of directly overcoming the constraint on deciding well imposed by relativity theory. From the view of modern physics, communicating at greater than light speed is impossible, hence investing in a research program to discover a way of communicating at greater than light speed would be foolish. From the view of true science, communicating at greater than light speed does not ring true with what else we know about physics, hence investing in such a research program would likely be foolish. From the view of public science, not only does communicating at greater than light speed not ring true with what else we know about physics, but also the net present value of the benefits of communicating at greater than light speed are currently likely to be small relative to the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

net present value of the cost of the research program, hence investing in such a research program would be even more likely to be foolish.¹⁹”

“¹⁵ Note that the term ‘world’ here means what modern astronomers call the ‘universe.’ This use of the term ‘world’ allows us to reserve the term ‘universe’ for the set of parallel worlds created in the many worlds interpretation of quantum mechanics.”

“¹⁶ We may model deciding well as a tree consisting of events that change the course of events that the decider controls and events that change the course of events that the decider does not control. We may call the former *decision nodes* and the latter *uncertain event nodes*.”

“¹⁷ Implicit in this decision-oriented view of the world is belief that free will, which is to say in the power of people to change the course of history, exists. We currently have no empirical way of disproving that free will either exists or does not exist. However, we can logically determine that pursuing the invariant end of deciding well calls for us to believe that free will exists. If free will does not exist, we have no choice in what to believe; including whether to believe that free will exists or does not exist. We are as puppets in a shadow play. On the other hand, if free will exists, we have a choice in whether to believe that free will exists or does not exist. If we choose to believe that free will exists, we have a logical reason to try to pursue the invariant end of deciding well. If we choose to believe that free will does not exist, we will have no logical reason to try to pursue the invariant end of deciding well. From the invariant view of science, we ought to choose the research program that seeks to disprove the beautiful choice, which is that free will exists. This calls for us to act as if we believe that free will exists.”

“¹⁸ Following this reasoning, we can reconcile biological evolution with public science. If the problem we choose lies within the domain of modern biology, we ought to think like modern biologists. If this problem lies outside the domain of modern biology but within the domain of true science, we ought to think like true scientists. If the problem lies outside the domain of true science but within the domain of public science, we ought to think like public scientists. Choosing the right frames for solving our chosen problems is an important part of the process of pursuing the timeless end of believing well.”

“¹⁹ People on earth have little need to communicate with each other at greater than light speed. Arguably, if there are people elsewhere, they would be wise not to communicate with people on earth until people on earth learn what deciding well truly means.”

was deleted.

Chapter 3, Conclusion, first paragraph

Changed “it calls for us to see” to “to see” in the last sentence.

Chapter 3, Conclusion, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**section**” to “**chapter**” in the last sentence.

Chapter 3, Conclusion, last paragraph

Changed “**section**” to “**chapter**” in the last sentence.

Chapter 4, Promote Savings for Welfare, second paragraph, third through fifth sentences

“The universal welfare savings account would allow **consumption** tax-free withdrawals for **qualified welfare expenses**. **These expenses would include retirement**, medical, **unemployment, and** educational expenses for the owners of the account and their dependants. They would also include unlimited giving to private charities.¹⁶”

were changed to:

“The universal welfare savings account would allow tax-free withdrawals for medical, educational, **and hardship-related** expenses for the owners of the account and their dependants. They would also include unlimited giving to private charities.¹⁶ **All other withdrawals would be treated as consumption.**”

Appendix A, Less is More, first paragraph

Changed “efficiency experts” to “**modern** efficiency experts” in the fourth sentence.

Changes in Version 2010.09.30

Preface, second paragraph

Changed “actions” to “actions **well**” in the last sentence.

Preface, third and fourth paragraphs

“Some **people** will **likely** claim that I confuse seeking the truth with seeking wisdom . In making this claim, they confuse the temporal problem of seeking the truth and the temporal problem of seeking wisdom with the timeless problem of seeking both the truth and wisdom. In doing so, they confirm Albert Einstein’s observation, “Perfection of means and confusion of ends seem to characterize our age.”

“**The spirit of our age concerns breaking unwieldy wholes into parts in order to solve problems better. We can see this process in modern science (reductionism), philosophy (analysis), and economics (the division of labor). A major disadvantage of using this process is forgetting to consider the infinitely greater whole. Although definite knowledge of this infinite whole, like definite knowledge of the transcendental number**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

π , will remain forever beyond our grasp, we must not pass over it in silence. When we expand the scope of the problems we face to the limits of imagination, a structure of timeless ends emerges. Understanding the process by which we progress toward these ends can help us progress ever more readily.”

were changed to:

“Some **modern thinkers** will claim that I confuse seeking the truth with seeking wisdom. In making this claim, they confuse the temporal problem of seeking the truth and the temporal problem of seeking wisdom with the timeless problem of seeking both the truth and wisdom. In doing so, they confirm Albert Einstein’s observation, “Perfection of means and confusion of ends seem to characterize our age.” **This confusion arises from a deeply-ingrained cultural bias toward pursuing what we currently want rather than pursuing what we need to decide well. This temporal bias tends to blind us to making the best use of what we currently know.**”

Preface, new fourth paragraph

Changed “**From a scientific view**” to “**To help us overcome this temporal bias**” in the first sentence.

Preface, new sixth through thirteenth paragraphs

“**To the extent that we decide well, so conceived, there is a direction to cultural evolution in people. This simple insight has profound implications for how we think about allocating resources:**

Deciding well creates economic stress, the need to reallocate resources. If we decided perfectly, this stress would flow smoothly through the economic system until the system fully adjusted to the change that created it. Regrettably, we do not decide perfectly. Deciding less than perfectly creates or transfers wasteful stress, which in turn creates turbulence in the flow of economic resources. As the amount of such turbulence rises, we spend more time responding to it and less time deciding well in ways that create it. Conversely, as the amount falls, we spend less time responding to it and more time deciding well in ways that create it. If deciding imperfectly only created turbulence in the flow of resources, the amount of turbulence would tend toward a “natural” level. However, deciding imperfectly also embeds new mistakes into, or reinforces existing mistakes in, our networks of knowledge-in-use. Over time, deciding well releases stress “frozen” in these networks. These unpredictable releases of “frozen” stress tend to disrupt the “natural” level of turbulence.

“**One conclusion we may draw from this simple model is that the modern, static concept of equilibrium based on what people currently know leads us to severely underestimate the probability of great turbulence. The cause of this great turbulence is the catastrophic release of embedded stress involved in moving toward a dynamic equilibrium based on**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

pursuing the timeless end of deciding well. This claim is consistent with Benoit Mandelbrot's discovery that market price changes exhibit scale invariance.

“Another conclusion that we may draw is that responding to periods of great turbulence with policies that lower the quality of decision-making will create the conditions for even greater releases of stress in the future. Seeking to extend good times by lowering the quality of decisions is as shortsighted as seeking to prevent all forest fires. The choice we face is not between good times and bad times. It is rather between cycles of good times and bad times, and longer cycles of good times and wretched times. It took a devastating forest fire in Yellowstone National Park to change the prevailing view of how we ought to manage forests. It will likely take an equally devastating human catastrophe to change the prevailing view of how we ought to manage ourselves.

“This simple model of deciding well has as profound implications for how we think about believing well as it does for how we think about allocating resources well. The timeless end of believing well is one of the universal, boundless factors of deciding well. Following this simple model of deciding well, pursuing the timeless end of believing well calls for neither faith in experience per se, nor faith in something that transcends experience, but rather faith in the pursuit of the timeless end of believing well. If we call the endless process of pursuing the timeless end of believing well *science*, the basis of science is science. The whole of science is not, as Albert Einstein famously claimed, a refinement of everyday thinking, but rather the endless process of refining everyday thinking, which includes the process of refining the process of refining everyday thinking.

“One reason to believe that science ought to be an endless process concerns the logical problem of induction. Until we have experienced everything that can be experienced, we can never be certain that the general beliefs we induce from experience are true. On a deeper level, until we have experienced everything that can be experienced, we can never be certain that the concepts we invent to describe the world are the best concepts for describing the world. Consider the belief that all crows are black. The veracity of this belief depends on how we define the concepts we use to form this belief. Imagine that we encounter a new bird that appears to be a non-black crow. We can choose either to call this bird a crow, which would make the belief that all crows that exist are black false, or we can choose to call this bird something other than a crow, which would allow us to continue believing that all crows are black. Further, this uncertainty concerns not only the concepts we use to formulate the belief we are testing, but also the concepts we use to define these concepts, and the concepts we use to define these concepts, and the concepts we use to define these concepts, and so on. For example, the veracity of the belief that all crows are black depends on the meaning of “to be.” Does this concept concern existence in (1) the current state of the world; (2) the history that led from the initial state of the world to the current state, the current state, and all future states accessible from the current state; or (3) the initial state of the world and all possible states accessible from the initial state?

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Another reason to believe that science ought to be an endless process concerns the physical problem that entangled pairs of quantum-level objects create for our ability to explain what happens in part of the world. What makes this especially important is the existence of systems in which the smallest of changes may lead to ever larger changes over time. An event as apparently inconsequential as a butterfly flapping its wings may not only change the weather on a distant continent, but also the planetary structure of a distant solar system.

“A third reason to believe that science ought to be an endless process concerns the practical problem of motivation. If we believe that free will does not exist, we believe that we are not free to choose either what to pursue or how best to pursue it. This belief does not motivate us to decide well, hence to explain what causes sensations of the world. On the other hand, if we believe that free will exists, we believe that we are free to choose what to pursue and how best to pursue it motivates us to decide well, hence to explain what causes sensations of the world. It also calls for us to expand the scope of this endless pursuit to include mental as well as physical objects. These mental objects include mental models of mental objects, hence mental models of mental models of mental objects, mental models of mental models of mental models of mental objects, and so on to infinity. If we choose the smallest problems we can imagine, we choose to deal with our ignorance of the world in the form of uncertain predictions. Today, this is the realm of quantum mechanics. If instead we choose the largest problem we can imagine, which is the problem that contains all other problems, we choose to deal with our ignorance of the world in the form of incomplete explanations. As we shall see, this is the realm of the public sciences. Choosing the best problem to solve is a matter of balancing the costs of these two types of ignorance. These costs depend on the quality of the models we use to predict and explain sensations of the world.”

were deleted.

Preface, new seventh through last paragraphs

“From the timeless view of science put forth in this work, deciding well calls for us to find and solve problems well. Models that help us predict sensations of the world help us solve given problems. Models that help us explain sensations of the world help us find problems to solve. The distinction between solving given problems and finding problems to solve depends on the scale of the problem we choose to solve.

“To improve the quality of the models we use to predict and explain our sensations of the world, we need means of judging these models. The pragmatic means of judging models that we use to predict sensations is to judge how well these models help us solve given problems. The pragmatic means of judging models that we use to explain sensations is to judge how well these models help us find problems to solve.

“From the temporal view of modern science, judging the models that we use to find problems to solve calls for us to judge models for helping us judge these models, judge models for helping us judge models for helping us judge these models, judge models for

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

helping us judge models for helping us judge models for helping us judge these models, and so on to infinity. In contrast, from the timeless view of science put forth in this work, judging these models well calls for us to decide well in pursuing the timeless end of judging models well. Deciding well calls for us to judge both models that help us predict sensations of the world within the realm of the problem we choose to solve and models that explain sensations of the world. This holds true regardless of the size of the problem we choose to solve.

“Students of Western thought may find in **this timeless concept of science** a synthesis of the Platonic pursuit of knowledge of ideal forms and the Aristotelian pursuit of knowledge of natural forms. Like the Platonic pursuit, the pursuit of **knowledge of universal, boundless factors** of deciding well involves pursuing knowledge of ideal forms. Unlike the Platonic pursuit, **it recognizes that its ideal forms are objects that we can never know completely**. Like the Aristotelian pursuit, the pursuit of **knowledge of these factors** involves replicable patterns of reasoning. Unlike the Aristotelian pursuit, **its rules for reasoning include** not only rules that bind beliefs together into logical frameworks, but also rules for binding logical frameworks together into a coherent whole. **These rules for reasoning concern** not only logic but also symmetry.

“**The timeless concept of deciding well put forth in this work exhibits two types of symmetry. First, the relations between the universal, boundless factors of deciding well have rotational symmetry. We can picture this symmetry in a diagram that uses line segments to represent the relations between universal, boundless factors of deciding well spaced equally around the circumference of a circle. Second, the pursuit of the timeless end of deciding well has translational symmetry with respect to reference frames defined by beliefs and circumstances. When we expand the problems we face to the limits of imagination, our problems become part of the problem that contains all other problems. The solution to this universal problem, which is pursuing the timeless end of deciding well, is the same for all of us.**

“**From temporal views of science that conflate replicable reasoning and logic, a concept of reasoning that includes both logic and symmetry surpasses rationality. To use a term coined by Douglas Hofstadter to describe his strategy for competing well by cooperating well, it is *superrational*. In contrast, from the timeless view of invariant science, temporal views that conflate reasoning and logic are shortsighted. They concern learning about Plato’s cave for its own sake rather than learning about it in order to learn how best to climb ever upward toward the timeless end and invariant factors of deciding well.**”

were changed to:

“**This essential process of pursuing the timeless end of deciding well calls for us to find and solve problems well. Models that help us explain sensations of the world help us find problems to solve. Models that help us predict sensations of the world help us solve given problems.**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“To improve the quality of the models we use to predict and explain our sensations of the world, we need means of judging these models. The pragmatic means of judging models is **to judge them by their usefulness. We use models that help us explain sensations to find problems to solve. We ought to judge these models by how well they help us find problems to solve. We can do so by judging how well these models ring true with what we currently know about pursuing the timeless end of deciding well. This is *not* consistent with modern science. We use models that help us predict sensations to solve given problems. We ought to judge these models by how well they help us predict sensations. This is consistent with modern science.**

“Students of Western thought may find in **the pursuit of the timeless end of deciding well** a synthesis of the Platonic pursuit of knowledge of ideal forms and the Aristotelian pursuit of knowledge of natural forms. Like the Platonic pursuit, the pursuit of **the timeless end** of deciding well involves pursuing knowledge of ideal forms. Unlike the Platonic pursuit, **this pursuit is endless. We can never see the whole truth by the light of all that is good.** Like the Aristotelian pursuit, the pursuit of **the timeless end of deciding well** involves replicable patterns of reasoning. Unlike the Aristotelian pursuit, **this pursuit involves** not only rules that bind beliefs together into logical frameworks, but also rules for binding logical frameworks together into a coherent whole. **It involves** not only logic but also symmetry **across logical frameworks.**

“**From the timeless concept of deciding well put forth in this work, the essential** pursuit of the timeless end of deciding well has translational symmetry with respect to reference frames defined by beliefs and circumstances. When we expand the scope of the problems we face to the limits of imagination, our problems become part of the problem that contains all other problems. The solution to this universal problem, which is the essential process of pursuing the timeless end of deciding well, is the same for all of us. **In mathematical terms, the essential pursuit of the timeless end of deciding well is *invariant* with respect to reference frames defined by beliefs and circumstances. As such, it is something that we discover rather than create.**

“**In this little book, I have tried to provide people with the intellectual tools they need to discover and use the essential process of pursuing the timeless end of deciding well. In the first chapter, I explain why making the most of what we know in pursuing the timeless end of living well calls for us to pursue the timeless end of deciding well. In the remaining four chapters, I describe logical frameworks useful in pursuing the timeless end of deciding well.**

“**In the chapter titled *Living Well*, I provide invariant alternatives to the modern economic concepts of wealth, consumption, trade, production, and profit. I go on to describe what I believe to be the information age equivalent of Adam Smith’s virtuous circle of the division of labor and expansion of market size.**

“**In the chapter titled *Contemplating Well*, I explore the role of constraints in the pursuit of the timeless end of deciding well. This yields a number of unexpected tools. Notable**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

among these “surprises” are a dynamic alternative to Pareto optimality and a decision-oriented interpretation of quantum mechanics.

“In the chapter titled *Believing Well*, I describe the process of refining everyday thinking. This includes invariant alternatives to the modern concepts of the natural sciences, the social sciences, and the humanities. Next I describe the process of refining the process of deciding well. This includes explanations of why the modern economic concept of equilibrium leads us to underestimate the probability of great turbulence and why seeking to extend good times by lowering the quality of decisions is as shortsighted as seeking to prevent all forest fires. I end the chapter with some brief reminders about pursuing the timeless end of believing well.

“In the chapter titled *Governing Ourselves Well*, I argue that it is useful to think of governments as timeless experiments that test the stories that we use to assign rights and responsibilities. I go on to argue that the best such story is the one that calls for us to pursue the timeless end of living well ever more wisely. I end the chapter with a brief description of the differences between timeless, modern, and classical liberalism.

“My hope in writing such a short book is that people will read it more than once, and that on each reading they will understand ever more of their own experiences in a better way.”

Chapter 1, Useful Frames, second paragraph, footnote

Changed “(versus effectiveness) changes with the size of the subordinate problem chosen” to “changes with the size of the problem” in the first sentence.

Chapter 1, Temporal versus Invariant Values, fourth paragraph

Changed “Truth” to “timeless end of believing well” in the first sentence.

Changed “question” to “problem” in the seventh sentence.

Chapter 1, Overview, entire section

“Overview

In this chapter, we saw how the invariant concept of deciding well can help us pursue the invariant end of deciding well, and so all of the invariant factors of deciding well. In the remaining four chapters, we will see how this invariant concept can help us pursue the timeless ends of living well, contemplating well, believing well, and governing ourselves well. Each of these chapters presents a different aspect of the invariant process of deciding well.”

was deleted.

Chapter 2, A Strategy for Learning, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “Toyota’s” to “Today, Taiichi Ohno’s” in the second sentence.

Chapter 3

Inserted a new chapter titled “Contemplating Well”:

Contemplating Well

“Beauty is truth, truth beauty, — that is all ye know on earth, and all ye need to know.” —
John Keats

Pursuing the Ring of Truth

There is an ancient belief that equates truth with beauty. Nineteenth-century poet John Keats expressed this belief in the closing lines of his poem, “Ode on a Grecian Urn”:

“Beauty is truth, truth beauty, — that is all ye know on earth, and all ye need to know.”¹

Combining this ancient belief with the invariant concepts of pleasure and joy yields an invariant concept of beauty: *beauty is the quality of objects whose contemplation yields not only pleasure but also the joy that comes from improving how well our beliefs fit together into a coherent whole that is useful in pursuing the invariant end of deciding well.*

To give us pleasure, an activity must not be too easy or too hard. Too easy an activity bores us; too hard an activity overwhelms us. When the activity is contemplation, the object of contemplation must not be too simple or too hard to contemplate. Contemplating too simple an object bores us; contemplating too hard an object overwhelms us. Between what is boring and what is overwhelming is a level of difficulty that allows us to lose ourselves in contemplation. As we learn more, objects that once were too hard may bring us pleasure; and objects that once brought us pleasure may become boring. Learning about the structure of classical music may turn Beethoven’s symphonies from being overwhelming to being beautiful. It may also turn pop music from being beautiful to being boring.

To give us joy, an activity must improve our state of being. When the activity is contemplation, the object of contemplation must be just novel enough for us to learn from it. If the object is not novel or too novel we will not learn from it. As we learn more, objects that once brought us joy become mundane and objects that were once too novel become beautiful. Before we learn calculus, Newton’s theory of gravity is too novel to bring us joy. After we learn calculus, it has the potential to bring us joy. With use, it becomes just another tool.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

From the invariant view of deciding well, pursuing the timeless end of believing well calls for us to pursue all of the invariant factors of deciding well. This is a benefit, not a burden. It provides us with a more certain way of testing problems before we attempt to solve them. If a problem is consistent with all of our beliefs about the invariant factors of deciding well, then it rings true. We have found a beautiful problem to solve.

Leaving Behind Modern Explanations

Pursuing the invariant end of deciding well calls for us to choose among a nearly infinite number of nearly infinite paths forward. Thinking deeply about these paths calls for us to leave behind modern models for explaining the world. In doing so, we become as sailors venturing beyond landfall. Fortunately, we can use the linguistic equivalent of transcendental recursive numbers to help us navigate these potentially maddening seas.

Transcendental recursive numbers are transcendental in that we cannot reduce them to algebraic expressions. In this sense, we can never know them completely. They are recursive in that they are the solution of at least one endlessly repeating cycle of steps in which the result of one cycle becomes the basis for the next cycle. The mathematical constant π is a transcendental recursive number. It is transcendental in that we cannot reduce it to an algebraic expression. It is a recursive in that we can theoretically know it by means of at least one endlessly repeating cycle of steps in which the result of one cycle becomes the basis for the next cycle.

We can imagine a set of transcendental recursive objects. These objects are transcendental in that we cannot reduce them to logical expressions. In this sense, we can never know them completely. They are recursive in that we can theoretically know them by means of at least one endlessly repeating cycle of steps in which the result of one cycle becomes the basis for the next cycle. Wisdom is a transcendental recursive object. Wisdom is transcendental in that we cannot reduce it to logical expressions. It is recursive in that we can theoretically know it by means of at least one endlessly repeating cycle of steps in which the result of one cycle becomes the basis for the next cycle.

We may think of the processes by which we come to know ever more about recursive numbers or objects as having three elements. The first of these elements is the process itself. In pursuing π , this process is any one of many means of computing π . In pursuing Wisdom, this process is deciding well.

The second of these elements is the transcendental end of the process. This end is complete knowledge of the recursive number or object. In computing π , the transcendental end is the ratio of the circumference of a Euclidean circle to its diameter. The form of this end is a number. In deciding well, the transcendental end is the knowledge that allows a perfectly wise being to decide perfectly well. The form of this end is the form of knowledge that is most useful to a perfectly wise being in deciding well.

The third of these elements is the timeless end of the process. The timeless end is that which we seek during the process. In computing π , the timeless end is ever better approximations of π . The form of this end is a number. In deciding well, the timeless end

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

is ever better approximations of Wisdom. The form of this end is a set of incomplete descriptions of the world. These descriptions ought to be as simple as possible, but not simpler; and the set of descriptions ought to be as small as possible, but not smaller.²

Three Approaches to Overcoming Constraints

Pursuing the invariant end of deciding well calls for us to choose problems well, which in turn calls for us to think beautifully. The concept of thinking beautifully will likely seem strange to most modern readers. This is in part due to the modern habit of confusing our mental models with reality. We saw this in the EOQ example, in which modern managers confused the EOQ model with reality. We can also see it in the claim that we can compute π .

From the frame of mathematics, π is *computable*, which is to say that we can program all of the steps for computing π into a machine that does nothing more than follow logical instructions. In contrast, from the invariant frame of deciding well, π is not computable. The false claim that π is computable arises from reducing the actual problem of computing π to a theoretical problem of computing π .

Imagine giving the greatest scientific minds of 1776 the task of computing the value of π to one trillion (10^{12}) decimal places. The most likely result would be a description of the best tool for computing π in 1776 and the explanation that computing π to one trillion decimal places was possible in theory but impossible in practice. No one in 1776 imagined what we currently call supercomputers.³

Now imagine giving the greatest scientific minds of today the task of computing π to one googol (10^{100}) decimal places. Based on how they respond to this challenge, these people will likely fall into one of two basic groups. The first group will report how computing π to one googol decimal places might be done using currently existing or imagined tools. The second group will report that it is currently impossible to imagine what tools will first make computing π to one googol decimal places possible.⁴

From the invariant frame of deciding well, there is a third group. This group will report that the best means of computing π to one googol decimal places is to pursue the invariant end of deciding well, hence to pursue the virtuous circle of good people and good products. Over time, pursuing this virtuous circle will yield general purpose computing tools capable of computing π to far beyond one trillion decimal places.

Public Order

These three responses to constraints we currently face in computing π suggest three distinct ways of thinking about policymaking. The first way suggests that policymakers ought to promote solutions to problems based on currently existing or imagined knowledge. From this view, excellence in means concerns *efficiency at solving given problems*. We may call this the *engineering approach to policymaking*.

The second way suggests that policymakers ought to leave the problem of overcoming constraints to people to work out for themselves by means of the recombination of existing knowledge, the random creation of new knowledge, and unbounded competition

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

in the marketplace of knowledge. From this view, excellence in means concerns *fitness for the environment*. We may call this the *biological approach to policymaking*.

The third way suggests that policymakers ought to promote the invariant process of deciding well. From this view, excellence in means concerns *willingness and ability to pursue the invariant end of deciding well*. We may call this the *invariant approach to policymaking*.

Associated with each of these three ways of thinking about policymaking is a distinct way of thinking about public order. From the engineering view, the role of policymakers is to find and solve public problems. The way policymakers define the problem and its solution provides them with a concept of order. In addressing their chosen problem and solution, policymakers impose their sense of order on the world. Hence, increasing public order is always good.

From the biological view, the role of policymakers is to promote an environment that helps people find and solve problems that hinder them from increasing their ability to survive and thrive. Here, public order concerns the freedom of people to act on their current beliefs about how best to survive and thrive. Either too much or too little public order shuts down the experimentation needed to increase fitness. Hence, increasing public order is good when there is too little of it and bad when there is too much of it.

From the invariant view, the role of policymakers is to promote an environment that helps people pursue the invariant end of deciding well. This gives rise to a timeless concept of public order, which we may call *invariant public order*. Pursuing invariant public order is always good.⁵

Invariant Public Order

Imagine a team cycling race in which we measure excellence by the average time it takes team members to complete a two hundred kilometer course. During this event, team members can interact only with one another and not with members of other teams. How should team members choose to order themselves?

Imagine how a team taking an engineering approach to policymaking would approach the problem of ordering themselves in this situation. The first task would be to reduce the ill-defined problem to a problem or set of problems that members of the team can solve. The simplest solution would be to choose a single public order for all conditions expected along the course. A refinement to this solution would be to choose different public orders for different conditions. There might be an order for traveling over flat terrain, another for traveling up hills, and a third for traveling down hills. Another refinement would be to develop procedures for rotating cyclists from more tiring positions to less tiring positions as they become tired within a given type of order. Yet another refinement would be to develop procedures for rotating cyclists from more tiring positions to less tiring positions when the team shifts between types of order. Over time, the team would refine their ability to maintain orders and to shift between these orders. To an outside observer, an accomplished team taking this approach would resemble an expert military drill team.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Imagine how a team taking a biological approach to policymaking would approach the problem of ordering themselves in this situation. Team members would develop relatively simple rules for overcoming constraints. Over time, they would learn ever better rules for overcoming constraints. To an outside observer, an accomplished team taking this approach would resemble a school of fish or a flock of birds.

Finally, imagine how a team taking the invariant approach to policymaking would approach the problem of ordering themselves in this situation. Team members would distinguish between the tactical end of cycling well based on what they currently know and the strategic end of deciding well. In addressing the tactical problem, they would choose to make the best use of current resources in addressing the tactical problem of cycling well. In addressing the strategic problem, they would seek ever better means of replacing non-knowledge resources useful in deciding well with knowledge resources useful in deciding well. In short, they would seek ever better means of deciding well.

In seeking ever better means of deciding well, the team would consider technological as well as organizational changes. One such change would be the combination of regenerative braking and boosting motors. This combination would allow cyclists to store otherwise wasted energy from cycling downhill to use when cycling uphill. Another such change would be a networked steering control system similar to experimental automated highway control systems that allow cars to travel bumper-to-bumper at high speeds. Such a system would execute tactical moves much more quickly and precisely than people can execute them. The combination of regenerative braking, boosting motors, and automated steering would quickly lead to the development of a means of transferring power from one vehicle to another. This change would eliminate the need to rotate team members from tiring positions to less tiring positions. It would also allow the team to reduce wind resistance by putting cyclists who ride taller than others near the center of the pack. To a long-standing outside observer, an accomplished team taking the invariant approach to constraints would resemble a liquid that undergoes phase changes as it becomes ever more fluid.

Zero Public Entropy

Liquids that undergo phase changes as they become ever more fluid lie outside of our everyday experience. A dramatic example of such a liquid is that of the isotope of helium that has two neutrons and two electrons (helium-4). Helium-4 atoms are objects subject to quantum effects having integer spin, which physicists call bosons. Unlike objects subject to quantum effects having non-integer spin, which physicists call fermions, more than one boson can occupy the same quantum state. Statistically, this is unlikely to happen unless bosons enter their lowest energy state, which physicists call their *ground state*. As the temperature approaches absolute zero (0 degrees Kelvin), an ever larger number of ⁴He atoms enter their ground state. At 2.172 degrees Kelvin, a large enough percentage of helium-4 atoms enter this state for the liquid to suddenly change from being only slightly more fluid than classical physics predicts to being much more fluid than classical physics predicts. In other words, liquid helium suddenly changes from being a fluid (Helium I) to a superfluid (Helium II).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

One lesson that we can learn from studying liquids like helium-4 is the usefulness of the concept of entropy in pursuing transcendental ends. Entropy is a measure of the amount of potentially available useful resources in an object. In modern thermodynamics, entropy is a measure of the potentially useful energy resources in a part of the world. We pursue the transcendental end of *zero thermodynamic entropy* by removing useful energy from a part of the world. In invariant decision science, entropy is a measure of the potentially available non-knowledge resources useful in deciding well in a process of deciding well. We pursue the transcendental end of *zero public entropy* by removing available non-knowledge resources useful in deciding well from a process of deciding well, thereby inducing the creation of knowledge resources useful in deciding well.⁶

We can use the concept of zero public entropy to help us find problems to solve. As we saw in the EOQ example, the concepts we use to frame our problems tend to blind us to finding better problems to solve. In the team cycling example above, one such blinder is the association of “cycling” with “bicycling.” This association tends to blind us to possibilities for substituting knowledge for non-knowledge resources in ways that would violate our concept of bicycling. These possibilities include regenerative breaking, boosting motors, and automated steering. A strategy based on lowering public entropy, a strategy based on removing ever more non-knowledge resources useful in deciding well from the endless process of deciding well, would reveal this problem.

A more subtle blinder in the team cycling example is the false belief that we can separate the problem of cycling well from the problem of deciding well. For a team of cyclists to take a truly invariant approach to constraints, its solution to the problem cycling well must be part of the solution to the problem of deciding well. For this to be true, being part of the team must be something every team member needs to do in order to decide well rather than simply something every team member wants to do. Again, a strategy based on lowering public entropy, which is to say a strategy of removing ever more non-knowledge resources useful in deciding well from the process of deciding well, would reveal this problem. Here, we see how lowering public entropy creates a problem whose solution does not fit within the bounds of our chosen problem of cycling well. In general, lowering public entropy reveals not only problems whose solutions fall within the bounds of our chosen problem, but also problems whose solutions surpass the bounds of our chosen problem, thereby overturning the belief system that led us to choose the problem we chose. We may call the problems whose solutions fall within the bounds of our chosen problem *normal problems* and those that surpass the bounds of our chosen problem *revolutionary problems*.

A Decision-Oriented Interpretation of Quantum Mechanics

Another lesson that we can learn from studying liquids like helium-4 is that we can use the knowledge of what happens as we approach such natural boundaries as absolute zero temperature to help us understand subtle changes that happen far from these natural boundaries. By studying what happens in extreme cases, we can gain a deeper understanding of our everyday world. By studying what happens as we approach the transcendental end of absolute zero temperature, we may refine our beliefs about how what happens at the microscopic level of quantum mechanics affects what happens on the macroscopic level of what we currently call the natural sciences. Similarly, by studying

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

what happens as we approach the transcendental end of absolute zero public entropy, we may refine our beliefs about how what happens on the microscopic level of quantum mechanics affects what happens on the macroscopic level of decision science.

Although quantum mechanical models provide us with incredibly accurate statistical predictions about what will happen on the microscopic level, it does not provide us with exact predictions about what will happen on this level. This uncertainty is due to two strange behaviors of objects on this level. First, these objects can act either like waves or like particles. Second, pairs of these objects may become entangled in such a way that changing the state of one object instantaneously changes the state of the other object regardless of how distant the other object is. Rigorous empirical testing over many decades has failed to disprove the existence of these two strange behaviors.

For more than seven decades physicists have been trying to interpret the mathematical models of quantum mechanics in ways that ring true with what they believe they know about causation on the macroscopic level. Most of these interpretations fall into one of three basic categories. The first of these basic categories contains interpretations that claim we should not waste resources trying to explain how objects at this level behave. We may call this the *Copenhagen interpretation* category. The second of these categories contains interpretations that claim that in time we will be able to find currently hidden variables that explain how objects at this level behave. We may call this the *hidden-variables interpretation* category. The third of these categories contains interpretations that claim that every possible way that an object can transition irreversibly from acting like a wave to acting like a particle actually happens. When one of these irreversible events happens, the world⁷ splits into a world in which the event occurs and into another world in which the event does not occur. Following this logic, everything that could possibly have happened since the beginning of time has actually happened. We may call this the *many worlds interpretation* category.

From the invariant view of deciding well, there is a fourth way we can interpret the quantum mechanics. It involves creating a new way of thinking about how we collectively decide well. If all people pursue the invariant end of deciding well, and do so well, we can treat all people as if they were a single decider. This allows us to use a decision tree model⁸ to relate quantum mechanics to everyday thinking.⁹ In this model the world consists of (1) a sequence of once current states-of-the-world, (2) a current state-of-the-world, and (3) a nearly infinite set of currently possible states-of-the-world. In short, the world consists of a past, a present, and a nearly infinite number of possible futures. Every time a quantum object irreversibly transitions from acting like a wave to acting like a particle, the current state-of-the-world changes and a nearly infinite number of possible states-of-the-world cease to be possible states-of-the-world. We may call this forward-looking, boundlessly-pragmatic approach to interpreting quantum mechanics *the decision tree interpretation*.

From the modern view of physics, the decision tree interpretation of quantum mechanics appears to ignore such things as constraints on deciding well imposed by relativity theory and information theory. In contrast, from the invariant view of decision science, this

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

interpretation hides details about the world as we currently understand it inside uncertain event objects (branch points). This is consistent with the purpose of decision tree models, which is to help us find and solve problems within the domain of the public sciences.

Consider the problem of whether to invest in a research program that has a goal of overcoming the constraint of communicating at greater than light speed. From the view of modern physics, communicating at greater than light speed is impossible; hence investing in a research program to discover a way of communicating at greater than light speed would be foolish. From the view of what we currently call the natural sciences, communicating at greater than light speed does not ring true with what else we currently know about physics; hence investing in such a research program would likely be foolish. From the view of decision science, the net present value of the benefits of communicating at greater than light speed are currently likely to be small compared to the net present value of the cost of the research program; hence investing in such a research program would likely be foolish. From the invariant view of deciding well, the most beautiful solution to the problem of whether to invest in this research program is the decision science solution.

The Elephant in the Room

One of the most beautiful things to emerge from pursuing the invariant end of deciding well is the relation between the invariant factors of deciding well and the values that people claim to seek when they seek to link or re-link with something infinitely greater than themselves.

The essential biological explanation of this coincidence is simple and straightforward. We evolved to have a religious need to become a part of something infinitely greater than ourselves. Seeking to satisfy this need is useful in securing the best chances of survival for our offspring and ourselves. We seek to satisfy this need by deciding well. We collectively refine our means of deciding well by deciding well over time. Deciding well and our understanding of deciding well co-evolve.

The essential theological explanation of this coincidence is as simple and straightforward. The Divine created us with the need to seek the Good, the Truth, Justice, Wisdom, and Beauty. We pursue these invariant values by deciding well. We collectively refine our means of deciding well by deciding well over time. Deciding well and our understanding of deciding well co-evolve.

Although these two essential explanations of this coincidence differ in their assumptions, they share the same means. Regardless of what core set of currently untestable beliefs, what personal faith, we choose to help us find the best problem to solve, the essential process of deciding well is the same for all of us. We are all as blind men seeking to know an infinitely large elephant.

¹ Keats, John "Ode on a Grecian Urn" in *The Oxford Book of English Verse 1250–1900*, A. T. Quiller-Couch, ed. (Oxford: Clarendon, 1919), reprinted in Bartelby.com, <<http://www.bartelby.com/101/625.html>> (30 September 2010).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

² The inspiration for this belief about the timeless end of deciding well was Albert Einstein's belief about what he called the objective truth as expressed in his book, *The Evolution of Physics from Early Concepts to Relativity and Quanta* (New York: Simon and Schuster, 1966, p. 31): "Physical concepts are free creations of the human mind, and are not, however it may seem, uniquely determined by the external world. In our endeavor to understand reality we are somewhat like a man trying to understand the mechanism of a closed watch. He sees the face and the moving hands, even hears its ticking, but he has no way of opening the case. If he is ingenious he may form some picture of a mechanism which could be responsible for all the things he observes, but he may never be quite sure his picture is the only one which could explain his observations. He will never be able to compare his picture with the real mechanism and he cannot even imagine the possibility or the meaning of such a comparison. But he certainly believes that, as his knowledge increases, his picture of reality will become simpler and simpler and will explain a wider and wider range of his sensuous impressions. He may also believe in the existence of the ideal limit of knowledge and that it is approached by the human mind. He may call this ideal limit the objective truth."

³ In December 20002, computer scientists Kanada, Ushio, and Kuroda computed pi to over 1.24 trillion decimal places. See the Wolfram MathWorld entry on π digits <<http://mathworld.wolfram.com/PiDigits>> (30 September 2010).

⁴ According to Thomas Sowell, when confronted with the complexities of life, those in the first group will tend to put their faith in the wisdom of experts and those in the second group will tend to put their faith in the wisdom of crowds, especially in the accumulated wisdom of the ages handed down to us in the form of language, culture, case law, and economic relations. For more on this see Thomas Sowell, *A Conflict of Visions: Ideological Origins of Political Struggles* (New York: William Morrow, 1987).

⁵ Zero public entropy is the transcendental end of the process of inducing the creation of knowledge useful in deciding well. It is the space-time equivalent of the state-of-the-world in which it is not possible to make one person better off without making another person worse off (Pareto optimality). From the view of a person behind the veil of complete ignorance, it is the ideal process of deciding well. For more on the process of inducing the creation of knowledge, see Appendix A.

⁶ Note that the term 'world' here means what we commonly call the universe. This use of the term 'world' allows us to reserve the term 'universe' for the set of parallel worlds created in the many-worlds interpretation of quantum mechanics.

⁷ We may model deciding well as a tree consisting of decision events and uncertain events. Decision events are events that change the course of events that the decider controls. Uncertain events are events that change the course of events that the decider does not control.

⁸ Implicit in this decision-oriented model of the world is belief that free will exists. We currently have no empirical way of disproving that free will either exists or does not exist.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

However, we can logically determine that we ought to act as if free will exists: If free will does not exist, we have no choice in what to believe; including whether to believe that free will exists or does not exist. We are as puppets in a shadow play. On the other hand, if free will exists, we have a choice in whether to believe that free will exists or does not exist. If we choose to believe that free will exists, we have a logical reason to try to pursue the invariant end of deciding well. If we choose to believe that free will does not exist, we will have no logical reason to try to pursue the invariant end of deciding well. From the invariant view of deciding well, we ought to choose the research program that seeks to disprove the beautiful choice, which is that free will exists. This calls for us to act as if we believe that free will exists.

Chapter 4, Refining Everyday Thinking, ninth paragraph

Changed “living well” to “pursuing the timeless end of deciding well” in the fifth sentence.

Added the following footnote to the end of the last sentence:

³ In modern economic terms, this argument for a holistic approach to believing well concerns the demand side of believing well. Readers looking for supply-side arguments for a holistic approach to believing would do well to start with W. V. O. Quine’s “Two Dogmas of Empiricism.””

Chapter 4, Refining Everyday Thinking, eleventh paragraph, last two sentences

“In contrast, from the invariant view of deciding well, science concerns not only what we are able to supply, but also what we need to decide well. These needs include the invariant factors of deciding well.”⁵

⁵ In modern economic terms, this argument for a holistic approach to believing well concerns the demand side of believing well. Readers looking for supply-side arguments for a holistic approach to believing would do well to start with W. V. O. Quine’s “Two Dogmas of Empiricism.””

were changed to:

“In contrast, from the invariant view of deciding well, science concerns not only what we are able to supply, but also what we need to decide well.⁵ Science is the self-similar, self-referential process of refining everyday thinking.”⁶

⁵ In modern economic terms, the argument for a holistic approach to believing well put forth in this book concerns the demand as well as the supply side of believing well. Readers looking for supply-side arguments for a holistic approach to believing would do well to start with W. V. O. Quine’s “Two Dogmas of Empiricism.””

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The essential process of refining everyday thinking is self-similar in that it is the same regardless of what size problem we choose. It is self-referential in that it refers to itself. We may think of the essential process of refining everyday thinking as the essential process of ridding ourselves of ever more ignorance about the world. At the smallest problem scale that we can imagine, which currently is the problem scale of quantum mechanics, our ignorance takes the form of uncertain predictions. At the largest problem scale we can imagine, which is the problem that contains all other problems, our ignorance takes the form of incomplete descriptions of what we need to do in order to rid ourselves of ever more ignorance of the world. Between these two extremes, our ignorance takes the form of both uncertain predictions and incomplete descriptions of what we need to do in order to rid ourselves of ever more ignorance. In seeking to rid ourselves of ever more ignorance, we need to address both of these types of ignorance.”

Chapter 4, Refining Everyday Thinking, last three paragraphs

“We can see the tendency of the modern view to blind us to timeless ends in the modern way of organizing academic fields into the *natural sciences*, the *social sciences*, and the *humanities*. From the modern view, which concerns what producers are able to supply under current constraints, this scheme makes sense. In contrast, from the invariant view of deciding well, this scheme does not make sense. To carve nature at its joints, we ought to replace these temporal categories with invariant categories. One possibility is to replace them with the *true sciences*, the *public sciences*, and the *arts*. Like the *natural sciences*, the true sciences would include all fields that seek to refine our beliefs about the Truth without concern for the Good, Justice, or Wisdom. Unlike the *natural sciences*, the true sciences would not imply that the beliefs and actions of people are not a part of nature.

“The public sciences would include all fields that seek to refine our beliefs about the Good, Justice, and Wisdom. The *moral sciences* would refine our beliefs about the Good; the *political sciences* would refine our beliefs about Justice; and the *decision sciences* would refine our beliefs about Wisdom. Unlike the *social sciences*, the public sciences would embrace the timeless end of revering life well.

“The arts would include all fields that aim at the ring of Truth rather than the Truth itself. Like the *humanities*, the arts would include what human beings create. Unlike the *humanities*, the arts aim to help us pursue Beauty, and so the Good, the Truth, Wisdom, and Justice.”

were changed to:

“We can see the tendency of the modern view to blind us to timeless ends in the modern way of organizing academic fields into the *humanities*, the *social sciences*, and the *natural sciences*. From the modern view, which concerns what producers are able to supply under current constraints, this scheme makes sense. In contrast, from the invariant view of deciding well, this scheme does not make sense. To carve nature at its joints, we ought to replace these temporal categories with invariant categories. One

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

possibility is to replace them with the *arts*, the *public sciences*, and the *true sciences*. The arts would include all fields that aim at the ring of Truth rather than the Truth itself. Like the humanities, the arts would include what human beings create. Unlike the humanities, the arts aim to help us pursue Beauty, and so the Good, the Truth, Wisdom, and Justice.⁷

“The public sciences would include all fields that aim at the Truth about the invariant factors of deciding well other than the Truth. The *moral sciences* would refine our beliefs about living well; the *political sciences* would refine our beliefs about governing ourselves well; and the *decision sciences* would refine our beliefs about deciding well. Unlike the social sciences, the public sciences would embrace the timeless end of revering life well.

“The true sciences would include all fields that aim at the Truth about the Truth. Like the natural sciences, the true sciences would include all fields that seek to refine our beliefs about believing well without concern for the other invariant factors of deciding well. Unlike the natural sciences, the true sciences would not imply that the beliefs and actions of people are not a part of nature.”

Chapter 4, Refining Deciding Well, first two paragraphs

“The invariant concept of science described above calls for us to refine the set of descriptions that we use to predict what will happen in public systems by how well they help us predict what will happen in these systems. We may begin to refine these descriptions by weeding out all descriptions that are not clear, concise, and logical. What remains is a set of precise descriptions that we use to predict what will happen in these systems. We may then refine this set by weeding out descriptions that fail to meet our (evolving) standards for helping us predict what will happen. What remains is a set of refined descriptions that we use to predict what will happen in these systems.⁸

“The invariant concept of science also calls for us to refine the set of descriptions that we use to explain what happens in the public systems we build to live and work together by how well they help us find temporal problems to solve. The rub is that we do not know exactly what it is that we ought to seek.”

were changed to:

“ The invariant concept of science described above calls for us to refine our beliefs about deciding well. This in turn calls for us to refine the models we use to help us predict how people will decide and the models we use to explain deciding well. We refine the models we use to help us predict how people will decide by weeding out all models that are not clear, concise, and logical. What remains is a set of precise models that we use to predict how people will decide. We further refine this set by weeding out models that fail to meet our (evolving) standards for helping us predict what will happen. What remains is a set of refined models that we use to predict how people will decide.⁸

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We refine the models we use to help us explain deciding well by weeding out all models that are not clear, concise, and logical. What remains is a set of precise descriptions that we use to explain deciding well. We further refine this set by weeding out models that fail to meet our (evolving) standards for helping us find temporal problems to solve. The rub is that we do not know exactly what it is that we ought to seek.”

Chapter 4, Refining Deciding Well, fourth paragraph

Changed “descriptions” to “models” in all (2 occurrences).

Chapter 4, Refining Deciding Well, fourth paragraph, footnote

Changed “descriptions” to “models” in the fifth sentence.

Changed “any one” to “a single” in all (2 occurrences).

Chapter 4, Refining Deciding Well, fifth paragraph

Changed “stories” to “models” in the second sentence.

Changed “descriptions” to “models” in all (5 occurrences).

Chapter 4, Refining Deciding Well, last paragraph

Changed “descriptions” to “models” in all (2 occurrences).

Chapter 4, Conclusion, title

Changed “Conclusion” to “Useful Reminders.”

Chapter 4, Useful Reminders, second paragraph

Changed “descriptions” to “models” in the third sentence (2 occurrences).

Chapter 5, A Sovereign Story of Boundless Pragmatism, title

Changed “Boundless Pragmatism” to “Deciding Well.”

Appendix C

Added a new appendix titled “Competing Well”:

Competing Well

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Supreme excellence consists in breaking the enemy’s resistance without fighting.” —
*Sun Zi*¹

If all of us were perfectly wise, we would all agree on which beliefs best help us pursue the invariant end of deciding well. Because none of us is perfectly wise, we not only disagree about these beliefs, but also about beliefs of all kinds. To settle these disagreements ever more wisely, we need a recursive process that concerns how to settle disagreements ever more wisely. We may call this recursive process *competing well* and the timeless end of this process *Winning*.

We pursue the timeless end of competing well by pursuing the timeless end of deciding well. We also pursue the timeless end of deciding well by pursuing the timeless end of competing well. Hence, the timeless end of competing well is an invariant factor of deciding well. Pursuing the timeless end of competing well (Winning) intertwines with pursuing the timeless ends of living well (the Good), believing well (the Truth), contemplating well (Beauty), governing ourselves well (Justice), deciding well (Wisdom), and revering life well (Wholeness). The better we decide, the more tightly these pursuits intertwine.

From the temporal view of deciding well, what we currently believe is always good, hence winning others over to what we currently believe is always good. In contrast, from the invariant view of deciding well, what we currently believe is not always what we need to believe in order to decide well, hence winning others over to what we currently believe is only good if what we currently believe is what we need to believe in order to decide well. Pursuing the timeless end of competing well calls not only for winning only those battles in which we are on the right side, but also for winning over people who do not share these beliefs in the way that is most conducive to pursuing the invariant end of deciding well. Supreme excellence consists not only in being on the right side, but also in breaking the enemy’s resistance without fighting. The surest means of achieving this goal is for all people to *knowingly* pursue the invariant end of deciding well.

¹ Sunzi, *The Art of War*, trans. by Lionel Giles (London: Luzac, 1910), part III, paragraph 2, available online at Project Gutenberg, <<http://www.gutenberg.org/catalog>> (30 September 2010).

Changes in Version 2010.11.11

Preface, first paragraph

Changed “*essay*” to “*book*” and “*thirty*” to “*thirty-two*” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, fourth paragraph

Changed “values” to “timeless ends” in the second to last sentence.

Changed “timeless ends” to “ends” in the last sentence.

Removed the block quote format.

Preface, fifth paragraph

“I wrote this essay to help people find better problems to solve, particularly those that concern how to prepare for unexpected problems. In the first section, I explain why it is important to distinguish between temporal and timeless ends. I go on to develop a timeless concept of deciding well that is independent of our beliefs and circumstances. In the balance of the essay, I apply this universal, unvarying concept of deciding well to the endless pursuits of living well, believing well, and governing ourselves well.”

was deleted.

Preface, new eighth paragraph, last sentence

“It involves not only logic but also symmetry across conceptual frameworks.”

was changed to:

“It involves not only logic but also coherence. The source of this coherence is the symmetry of pursuing the timeless end of deciding well.”

Preface, new tenth paragraph

Changed “logical frameworks” to “timeless logical frameworks” in the last sentence.

Preface, second to last paragraph

Changed “timeless, modern” to “invariant, modern American” in the last sentence.

Chapter 3, *Three Approaches to Constraints*, fourth paragraph

“Now imagine giving the greatest scientific minds of today the task of computing π to one googol (10^{100}) decimal places. Based on how they respond to this challenge, these people will likely fall into one of two basic groups. The first group will report how computing π to one googol decimal places might be done using currently existing or imagined tools. The second group will report that it is currently impossible to imagine what tools will first make computing π to one googol decimal places possible.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Now imagine giving the greatest scientific minds of today the task of computing π to one googol (10^{100}) decimal places. Based on how they respond to this challenge, these people will likely fall into one of two basic groups. The first group will report how computing π to one googol decimal places might be done using currently existing or imagined **computing tools**. **Because this approach relies on currently existing or imagined tools to pursue our chosen ends, we may call it *the temporal approach to overcoming constraints***. The second group will report that it is currently impossible to imagine what **computing** tools will first make computing π to one googol decimal places possible. **Because this approach relies on endless competition to produce the tools we need to pursue our chosen ends, we may call it *the timeless approach to overcoming constraints***.”

Chapter 3, *Three Approaches to Constraints*, last paragraph, last sentence

“Over time, pursuing this virtuous circle will yield **general purpose** computing tools capable of computing π to far beyond one trillion decimal places.”

was changed to:

“Over time, pursuing this virtuous circle will yield computing tools capable of computing π to far beyond one trillion decimal places. **We may call this *the invariant approach to overcoming constraints***.”

Chapter 3, *Public Order*, first three paragraphs

Changed “based on currently existing or imagined **knowledge**” to “based on **using** currently existing or imagined **tools**” in the second sentence.

“These three **responses** to constraints **we currently face in computing π** suggest three distinct **ways of thinking about** policymaking. The first way suggests that policymakers ought to promote solutions to problems **based on** currently existing or imagined **knowledge**. From this view, excellence in means concerns *efficiency at solving given problems*. We may call this the *engineering approach to policymaking*.”

“The **second way** suggests that policymakers ought to leave the problem of overcoming constraints to **people to work out for themselves by means of the recombination of existing knowledge, the random creation of new knowledge, and unbounded competition in** the marketplace of **knowledge**. From this view, excellence in means concerns *fitness for the environment*. We may call this the *biological approach to policymaking*.”

“The third way suggests that policymakers ought to promote the invariant process of deciding well. From this view, excellence in means concerns **willingness and ability to pursue the invariant end of deciding well**. We may call this the *invariant approach to policymaking*.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“These three **approaches to overcoming** constraints suggest three distinct **approaches to policymaking**. The **temporal approach to overcoming constraints** suggests that policymakers ought to promote solutions to problems **that use** currently existing or imagined **tools**. From this view, excellence in means concerns *efficiency at solving given problems*. We may call this the *engineering approach to policymaking*.”

“The **timeless approach to overcoming constraints** suggests that policymakers ought to **promote modern social science and** leave the problem of overcoming constraints to the marketplace of **ideas**. From this view, excellence in means concerns *fitness for an ever changing environment created by people acting like social animals*. We may call this the *biological approach to policymaking*.”

“The **invariant approach to overcoming constraints** suggests that policymakers ought to promote the invariant process of deciding well **and leave the problem of overcoming constraints to the marketplace of ideas**. From this view, excellence in means concerns *fitness for an ever changing environment created by people deciding ever more wisely*. We may call this the *invariant approach to policymaking*.”

Chapter 4, Refining Everyday Thinking, tenth paragraph, second footnote

“⁴ Note that this holistic definition of science reconciles W. V. O. Quine’s belief that the philosophy of science is philosophy enough with Morton White’s apparently contradictory belief that philosophy ought to include the whole of human experience. See White, Morton, *A Philosophy of Culture: The Scope of Holistic Pragmatism* (Princeton, NJ: Princeton University Press, 2002).”

was deleted.

Chapter 4, Refining Everyday Thinking, eleventh paragraph, last sentence

Added the following sentence:

“⁵ So conceived, the whole of science contains its own metascience.⁶”

“⁶ Arguably, this process consists of four levels of frames. There are basic frames that we use to choose solutions to temporal problems. These frames are analogous to the scientific frames of modern science. There are also invariant frames that we use to choose temporal problems, timeless problems, and the means for choosing timeless problems. These frames are analogous to the metaphysical frames of modern science. However, these frames are subject to empirical testing. Hence, we may reasonably call them *metascientific frames*. Philosophers may find in this boundless approach to believing well parallels to W. V. O. Quine’s naturalistic epistemology. A major difference is that the former embraces the whole of experience and the latter only embraces those aspects of experience that directly concern believing well. From the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

invariant view of deciding well, the incompleteness of Quine’s epistemology gave rise to both Jaegwon Kim’s criticism of Quine’s epistemology for not having a normative element and Morton White’s argument with Quine over the scope of holistic pragmatism. The philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all invariant factors of deciding well.”

Chapter 5, Liberalism, first paragraph

Changed “timeless” to “invariant” in the last sentence (3 occurrences).

Chapter 5, Liberalism, second paragraph

Changed “Timeless” to “Invariant” in the first sentence.

Changed “modern” to “American” in the first sentence.

Changed “the modern liberal view” to “this modern” in the second sentence.

Chapter 5, Liberalism, third paragraph

Changed “Timeless” to “Invariant” in the first sentence.

Chapter 5, Liberalism, fourth paragraph

Changed “timeless” to “invariant” in the first sentence.

Chapter 5, Liberalism, fifth paragraph

Changed “timeless” to “invariant” in the first sentence.

Appendix B, *Einstein's Twin Warnings*, first paragraph

Changed “atheists” to “materialists” in first sentence.

Changed biblical quote from Revised Standard Version to New Revised Standard Version.

Deleted the last sentence:

“Atheists ought to heed Einstein’s warning, “science without religion is lame.””

Appendix B, *Einstein's Twin Warnings*, second paragraph

Changed “theists” to “dualists” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed biblical quote from Revised Standard Version to New Revised Standard Version.

Appendix B, *Einstein's Twin Warnings*, third paragraph

Changed “this belief **in divine revelation**” to “this belief” in the second sentence.

Changed “pronouncements **of divine law** are **the word of the divine being**” to “**divine** pronouncements are divine” in the third sentence.

Appendix B, *Einstein's Twin Warnings*, fourth paragraph

Merged the fourth paragraph into the third paragraph.

Appendix B, *Einstein's Twin Warnings*, last paragraph, last sentence

“**Theists** ought to heed Einstein’s warning, “religion without science is blind.””

was changed to:

“**Dualists as well as materialists** ought to heed Einstein’s **twin warnings**, “**Science without religion is lame**; religion without science is blind.”

Appendix C, second paragraph

Deleted all parenthetical terms from the fourth sentence.

Changed “pursuits” to “**endless** pursuits” in the last sentence.

Appendix C, third paragraph

Changed “**goal**” to “**temporal end**” in the last sentence.

Changes in Version 2010.11.24

Preface, eighth paragraph

Deleted the second to last sentence: “**It involves not only logic but also coherence.**”

Preface, tenth paragraph

Changed “**four** chapters” to “**six** chapters” in the last sentence.

Preface, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Inserted the following paragraphs:

“In the chapter titled *Revering Life Well*, I describe a timeless spiritual end that both materialists and dualists can agree to pursue. In doing so, I expound on Einstein’s twin claims that science without religion is lame and religion without science is blind.

“In the final chapter, *Competing Well*, I describe Douglas Hofstadter’s concept of superrationality. I then explain why we ought to replace our current concept of rationality with a generalized form of Hofstadter’s superrationality. I go on to use this general concept to show the limits of using John Boyd’s idea of competing in time as a tool for helping us find problems to solve.”

Chapter 1, Temporal versus Invariant Values, third to last paragraph, second footnote

Deleted the last sentence: “For more on revering life well, see Appendix B.”

Appendices B and C

Promoted Appendices B and C to chapters 6 and 7.

Chapter 7, end

Added the following two sections:

The Scope of Reason

As we saw in the first chapter of this book, it is reasonable for us to use the concept of symmetry to help us find problems to solve in pursuing the invariant end of deciding well. The more beautiful a problem appears to us, the more likely it is a good problem to solve.

From the modern view of game theory, the invariant approach to finding problems to solve is irrational. In contrast, from the invariant view of deciding well, the modern approach to game theory is irrational. This disagreement arises from differing concepts of reason. From the modern view of game theory, reason is a matter of following the rules of logic. In contrast, from the invariant view of deciding well, reason is a matter of not only following the rules of logic, but also the rules of symmetry. We can see this difference in the problem that modern cognitive scientist Douglas Hofstadter used to introduce what he called *superrationality* to readers of his Scientific American column, *Metamagical Themas*.²

Hofstadter sent a registered letter out to twenty people asking them to play a one-time Prisoner’s Dilemma game against each other. In each game, if both players cooperated each would receive \$3; if both defected each would receive \$1; and if one defected and the other cooperated, the defector would receive \$5 and the cooperator would receive \$0. Hofstadter told them that this was a one-time game and that, in his opinion, each player was equally bright. He asked them not to try to discuss this game with anyone, especially

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

with other people who they thought might be other players. He also gave them several scenarios to make sure that they understood the game. He told them that if everyone cooperated, everyone would receive \$57 ($19 \times \3). If everyone defected, everyone would receive \$19 ($19 \times \1). If eleven people cooperate and nine people defect; then the cooperators will each get \$30 ($10 \times \$3 + 9 \times \0) and the 9 defectors will each get \$63 ($11 \times \$5 + 8 \times \1). He told them that defectors would always receive at least as much money as everyone else (hence would never be a “loser”), but that they should aim at getting as much money as possible rather than to be a “winner.” He also told them that the ideal situation for any one player would be to be the single defector, in which case he or she would make \$95 ($19 \times \5) and the others would each make \$54 ($18 \times \$3 + 1 \times \0). Finally, he asked each player to tell him by telephone whether they wished to cooperate (C) or defect (D), and to explain why they chose as they did.³

From the modern view, the better solution to this game is to defect. The reason is that regardless of what the opposing player does, the deciding player is better off by defecting. If the opposing player defects, cooperating yields nothing and defecting yields \$1. If the opposing player cooperates, cooperating yields \$3 and defecting yields \$5. In contrast, Hofstadter suggests that all players consider the symmetry of the game as a whole before they settle on a strategy. Considering the game as a whole, each player can see that all players face the same problem and so should seek the same solution, which is the solution that provides the best payoff to each player. Again, if everyone cooperates, each player would get \$57; and if everyone defects, each player would get \$19. Hence, the better solution is to cooperate.

The actual results of Hofstadter’s experiment in game theory were that six people chose to cooperate and fourteen chose to defect. Both groups received less than the \$57 each would have received had all chosen to cooperate. The six cooperators each received \$15 ($5 \times \$3 + 14 \times \0) and the fourteen defectors each received \$43 ($6 \times \$5 + 13 \times \1). This result led Hofstadter to speculate that somewhere in the universe there are societies in which people compete by considering the symmetry of the whole before choosing a strategy. These “superrational” societies would tend to do better than “rational” societies.⁴

The players’ reactions to the game were as interesting as the results themselves. An expert in modern game theory saw no reason to cooperate. A biologist was so sure that no one would cooperate that he began his phone call by announcing “Okay, Hofstadter, give me the \$19.” A physicist reported that he wanted to cooperate, but said that he couldn’t find any way of justifying it. Another player became so frustrated that he ended up flipping a coin to determine whether to cooperate or defect.⁵ These reactions are typical of how people react to perceptual and cognitive dissonance. Nearly thirty years on, the conceptual problem underlying this dissonance has remained unresolved.

From the invariant view of deciding well, this dissonance is the result of using modern game theory to explain what people will do. We may use modern game theory to help us predict what social animals will do. However, we ought never to use modern game theory to help us explain what people do. To do so would be to prescribe that people ought to act like social animals rather than wise people.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Consider the reaction of the former author of the *Scientific American Mathematical Games* column, Martin Gardner, to Hofstadter's game:

"Horrible dilemma. I really don't know what to do about it. If I wanted to maximize my money, I would choose to D and expect that others would also; to maximize satisfaction, I'd choose C, and hope other people would do the same (by the Kantian imperative). I don't know, though, how one should behave *rationally*. You get into endless regresses: 'If they all do X, then I should do Y, but then they'll anticipate that and do Z, and so...' You get trapped in an endless whirlpool."⁶

Gardner recognized that the problem players face in Hofstadter's game is how best to frame the problem. From the invariant view of deciding well, we best frame this problem by making the problem of framing this problem part of the problem we are trying to solve. This creates an endless loop: How do we choose the best frame? We choose the frame that best helps us decide well. How do we choose the best frame for choosing the best frame? We choose the frame that best helps us decide well. How do we choose the best frame for choosing the best frame for choosing the best frame? We choose the frame that best helps us decide well... Regardless of how many times we cycle through this endless loop, the answer is always that we choose the frame that best helps us decide well. From a purely logical view, this gets us nowhere. Each time we cycle through the loop, we end up back at our starting point. However, from the invariant view of deciding well, each time we cycle through this loop, we expand the scope of the problem we are seeking to solve. This is consistent with Dwight Eisenhower's maxim, "If a problem cannot be solved, enlarge it." Taking this advice to its logical limit, we end with the problem that contains all other problems. We best address this universal problem by pursuing the invariant end of deciding well. Within Hofstadter's game, we best pursue this timeless end by choosing the more beautiful temporal problem to solve, which is the temporal problem that calls for us to cooperate well. This temporal problem has us act like wise people rather than social animals.

From the invariant view of deciding well, Hofstadter discovered an anomaly in modern game theory as a tool for helping us find problems to solve, but did not put forth a viable alternative to modern game theory as a tool for helping us find problems to solve: He showed us a procedure that changes us from acting like social animals to acting like wise people. However, he did so using language that discouraged us from using this procedure.⁷ He told players to aim at getting the most money. He might instead have told them to act in their own best interest. He told players that they were all equally bright. He might instead have told them that they were equally wise, hence equally good, true, and just. He emphasized the one-time nature of the game. He might instead have emphasized how current choices foreclose paths forward. In explaining what he had discovered, he distinguished between "rational" defectors and "superrational" cooperators.⁸ He might instead have distinguished between "incoherent" defectors and "rational" cooperators. He might have changed the concept of excellence in thinking, which we commonly call "rationality," from a concept based on logic to one based on both logic and symmetry.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

The concept of excellence in thinking is one of the most important concepts in our belief systems. Changing the meaning of this key concept calls for us to restructure our entire belief system. People will tend to make these changes when they expect the benefits of making them to exceed the costs of making them. The expected benefit of making these changes increases with the size of the problem on which we base our expectations. In contrast, the expected cost of making these changes remains the same regardless of the size of the problem on which we choose to base our expectations. Hence, the larger the scope of the problem on which we base our expectations, the more likely we are to make these changes. For example, if we base our expectations on the problem that contains all other problems, we will likely make these changes; but if we base our expectations on Hofstadter's one-time game, we will likely not make them.⁹

When combined with the inexhaustibility of knowledge, the tendency to adapt an ever more expansive and coherent view of the problems we face suggests a natural dynamic in the evolution of culture:

People who take a more expansive and coherent view of the problems they face tend to make better use of knowledge of how to live well than do their competitors. This affects their competitors in two ways. First, it provides competitors with an example of how to live better in the current environment. Second, it changes the environment in a way that is relatively better for people who take a more expansive and coherent view than those who take a less expansive and coherent view. In particular, it increases the pace of change. This shortens the time people have to adapt to change, which in turn increases the value of knowledge related to adapting to change. This knowledge includes knowledge of what people need in order to adapt well to a wide variety of possible changes. People acquire this knowledge by taking a more expansive and coherent view of the problems they face.

This natural dynamic calls for us to learn ever more about what ends we ought to pursue, which in turn calls for us to use a concept of rationality that considers not only logic but also the symmetry of pursuing the invariant end of deciding well.¹⁰

The Scope of Strategy

The virtuous circle between the pursuit of the invariant end of deciding well and the pace of change suggests a strategy for competing well by pursuing the invariant end of deciding well ever more quickly. We can view this strategy as the invariant counterpart to the timeless approach to competing well by pursuing the timeless end of deciding well ever more quickly. [Stub of a longer section.]

² *Metamagical Themas* is an anagram of *Mathematical Games*, the title of the Scientific American column Martin Gardner wrote from 1956 through 1980. Hofstadter wrote this column from January 1981 until July 1983. Many of these columns expand on themes he originally put forth in his book, *Gödel, Escher, Bach, An Eternal Golden Braid*.

³ Hofstadter, Douglas *Metamagical Themas, Questing for the Essence of Mind and Pattern* (New York: Basic Books 1985), pp. 740–1.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

⁴ Ibid., p. 764.

⁵ Ibid., pp. 742–3.

⁶ Ibid.

⁷ Ibid.

⁸ Ibid., pp.739-55.

⁹ This is not to say that people make such calculations before they change their belief systems. It is only to say that they tend to act as if they do.

¹⁰ As we have seen throughout this work, learning ever more about what ends we ought to pursue conflicts with temporal views of competing well, which do not allow for learning. Learning ever more about what ends we ought to pursue also conflicts with timeless views of competing well, which allow for learning ever more about means but not about ends. We can see this limitation in timeless social science models, which concern the evolution of cooperation. We can also see this limitation in timeless biological models, which concern how species pursue the timeless end of living well. When used as tools for helping people find problems to solve, both of these types of timeless models tend to blind us to pursuing all invariant factors of deciding well. We can avoid being blinded by the models we use to find problems to solve by using invariant models to help us find problems to solve. These models use a concept of rationality that considers symmetry as well as logic.

Chapter 5, Summary and Conclusion, entire section

Moved this section to the end of the seventh chapter.

Changes in Version 2010.11.29

Chapter 3, *A Decision-Oriented Interpretation of Quantum Mechanics*, title

Changed “*A Decision-Oriented Interpretation*” to “*Decision-Oriented Interpretations*.”

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, fifth paragraph

Changed “uncertain event objects (branch points)” to “the model” in the second sentence.

Chapter 7, Summary and Conclusion, entire section

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Promoted the section to become the eighth chapter, introduced by the following Hayek quote from the conclusion of *The Road to Serfdom*: “We shall not grow wiser before we learn that much that we have done was very foolish.”

Chapter 7, The Scope of Reason, first paragraph

Changed “lot” to “life” in the second sentence.

Changes in Version 2010.12.31

Preface, second to last paragraph

“In the final chapter, *Competing Well*, I describe Douglas Hofstadter’s modern game theory anomaly, in which he uses a concept of excellence in thinking that supersedes modern rationality to produce superior outcomes in symmetrical games. I then expand this concept of excellence in thinking to the limits of imagination. The result is an invariant concept of rationality, which is based not only on logic but also on the symmetry of the pursuing the invariant end of deciding well. I go on to use this invariant concept to expose the limitations of using John Boyd’s idea of competing in time as a tool for helping us find problems to solve.”

were changed to:

“In the final chapter, *Competing Well*, I explain why we ought to replace our current concept of rationality with a generalized form of Douglas Hofstadter’s concept of superrationality. I go on to refine John Boyd’s grand strategy for competing in time.”

Chapter 1, Useful Frames, first paragraph, footnote, last two sentences

“The term ‘normative’ emphasizes that we owe it to ourselves (ought) to pursue what is truly good for us. As we shall see, the term ‘timeless’ emphasizes the process of pursuing what is truly good for us.”

were changed to:

“The term ‘normative’ emphasizes that we owe it to ourselves (ought) to pursue such ends. In contrast, the term ‘timeless’ emphasizes that the process of pursuing such ends is not bounded in time.”

Chapter 1, The EOQ/RTS Example, last paragraph, footnote

Changed “Appendix A” to “the appendix” in the first sentence.

Chapter 3, Zero Public Entropy, second paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “Appendix A” to “the appendix” in the last sentence.

Chapter 4, Refining Everyday Thinking, eleventh paragraph, last footnote

Changed “four” to “two” in the first sentence.

Chapter 6, *Einstein’s Twin Warnings*, last paragraph, third sentence

Inserted the following sentence:

“His house has room for good Samaritans.”

Chapter 7, title

Changed “Sun Zi” to “Sunzi” in the attribution portion of the quotation.

Chapter 7, The Scope of Strategy, first paragraph

“The virtuous circle between the pursuit of the invariant end of deciding well and the pace of change suggests a strategy for competing well by pursuing the invariant end of deciding well ever more quickly. We can view this strategy as the invariant counterpart to the timeless approach to competing well by pursuing the timeless end of deciding well ever more quickly. [Stub of a longer section.]”

was changed to:

“The most important development in strategic thinking in the second half of the twentieth century was the idea of competing well by deciding well ever more quickly. The person most responsible for this idea was a United States Air Force (USAF) fighter pilot named John Boyd.

“*Prelude to Boyd’s Idea of Competing in Time*”

The development of Boyd’s ideas about competing well by deciding well ever more quickly began with a combat tour as an F-86 Sabre pilot in waning months of the kinetic phase of the Korean War. After returning from Korea, he was assigned to Nellis Air Force Base for further instruction. His skills were such that he stayed on as an instructor at the Fighter Weapons School. In the final months of his six years at Nellis, he wrote a manual on aerial combat, which became the handbook for close-in aerial combat tactics in the United States, and after it was declassified, around the world.¹¹

“In 1961, the USAF offered Boyd a chance to return to college to earn a graduate degree to supplement his undergraduate degree in business and economics from the University of Iowa. He instead decided to earn an undergraduate degree in industrial engineering from George Tech University. While trying to explain what he did as a fighter pilot to a fellow student, Boyd used thermodynamic terms to describe close-in aerial combat. His extended metaphor worked so well that he decided to reduce close-in aerial combat to

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

energy relations. He later worked with mathematician Tom Christie to refine what became known as Energy-Maneuverability (E-M) theory.¹²

“E-M theory revolutionized not only the way people think about close-in aerial combat, but also the way people design fighter aircraft. Using E-M theory, Boyd predicted that the then current American fighter planes were inferior to their Soviet counterparts in most close-in aerial combat situations. The acceptance of E-M theory led the USAF to assign him to the F-X program. Boyd believed that the plane the USAF wanted, which was a massive, multirole, single-seat, swing-wing fighter, would do very poorly against Soviet fighters. In its place, he recommended a fixed-wing, lightweight fighter optimized for aerial combat. Facing the threat of being forced to purchase the Navy’s swing-wing F-14 Tomcat rather than their swing-wing FX design, the USAF decided to change their F-X design to a smaller, fixed-wing air superiority fighter. This design became the F-15 Eagle.¹³

“Boyd believed that the F-15 Eagle was both too large and too expensive. With the help of Pierre Sprey, Everest Riccioni, and other members of what Riccioni called “the fighter mafia,” Boyd was able to convince enough people within the military industrial complex to proceed with developing two lightweight fighter prototypes, the YF-16 and YF-17. “The fighter mafia” and their allies were later able to force the USAF to buy the YF-16. During the development process, the USAF changed the YF-16 from an inexpensive air-superiority fighter into a moderately expensive multirole fighter, the F-16 Fighting Falcon. The Navy eventually purchased a larger and more expensive multirole fighter based on the YF-17 design, the F-18 Hornet.¹⁴

“*Temporal OODA Loop Analysis*”

In 1975, Boyd officially retired from the USAF as a full colonel. He planned to refine his ideas about aerial combat and develop his ideas about how and why people learn. His friend and fellow defense reformer Pierre Sprey encouraged him to develop his ideas on maneuver warfare. Given his talents as a synthesizer of ideas, Boyd saw how each of these three issues fit into the larger problem of how best to pursue the timeless end of competing well by deciding well ever more quickly.

“Boyd intuitively grasped that deciding well was a self-referential, self-similar process based on a decision cycle. Unlike the decision cycle put forth in this work, which concerns the essential sequence of finding a problem to solve, solving the problem, and learning from the experience; his essential sequence concerns observing the world, orienting oneself in the world, deciding on a course of action, and acting. He called this observe-orient-decide-act decision cycle an *OODA loop*.

“We can use Boyd’s OODA loop model to solve temporal problems.¹⁵ One such problem is the problem of predicting the performance of fighter planes in close-in aerial combat. Although we can use E-M theory to do this, there are cases in which E-M theory fails to predict well. The case that most concerned Boyd was the discrepancy between the actual and theoretical results of combat between F-86 pilots and MiG-16 pilots during the kinetic phase of the Korean War. According to E-M theory, F-86 pilots should not have

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

been as successful against MiG-16 pilots as they were. The stock answer for this theoretical anomaly was that F-86 pilots were better trained and had more experience than MiG-15 pilots. While this was true in combat against most North Korean and Chinese pilots, it was not true against most Soviet pilots. Boyd used his OODA loop model to look deeper. He concluded that F-86 pilots were able to overcome the relative deficiencies in their airplanes that E-M theory exposed with g-suits, a bubble canopy for better visibility, and a hydraulic control system that was both more responsive and less physically taxing. These factors allowed F-86 pilots to observe, orient, decide, and act more quickly than their opponents. Unlike American P-38 pilots fighting against Japanese pilots in slower, but more maneuverable fighter planes a decade earlier, F-86 pilots fighting MiG-15 pilots were not limited to a single tactic. This made them appear more unpredictable and threatening to their opponents. It also made it possible to “get inside the decision cycles” of their opponents, where they could remain relatively safe until their opponents made an exploitable mistake.¹⁶

“Timeless OODA Loops

Boyd also used his OODA loop model to solve problems in which learning was important. This called for (1) defining a timeless end of competing well; (2) adding a learning function to the “temporal” OODA loop model; and (3) defining our relations with each other. Boyd (1) defined his concept of the timeless end of competing well to be surviving on our own terms; (2) expanded the orientation element in the OODA loop to include a learning function that includes not only our past experiences and new information (from our recent experiences), but also our genetic heritage, cultural traditions, and tools for analyzing and synthesizing; and (3) argued that we form groups on all scales in order better to survive on our own terms.

“Boyd recognized that pursuing the timeless end of competing well (Winning) created different types of problems at different problem scales. He listed these types of problems in slide #141 of his *Patterns of Conflict* briefing:

Pattern

- **National goal**

Improve our fitness, as an organic whole, to shape and cope with an ever-changing environment.

- **Grand strategy**

Shape pursuit of national goal so that we not only amplify our spirit and strength (while undermining and isolating our adversaries) but also influence the uncommitted or potential adversaries so that they are drawn toward our philosophy and are empathetic toward our success.

- **Strategic aim**

Diminish adversary’s capacity while improving our capacity to adapt as an organic whole, so that our adversary cannot cope—while we can cope—with events/efforts as they unfold.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

- **Strategy**

Penetrate adversary's moral-mental-physical being to dissolve his moral fiber, disorient his mental images, disrupt his operations, and overload his system, as well as subvert, shatter, seize, or otherwise subdue those moral-mental-physical bastions, connections, or activities that he depends upon, in order to destroy internal harmony, produce paralysis, and collapse adversary's will to resist.

- **Grand tactics**

Operate inside adversary's observation-orientation-decision-action loops, or get inside his mind-time-space, to create tangles of threatening and/or non-threatening events/efforts as well as repeatedly generate mismatches between those events/efforts adversary observes, or imagines, and those he must react to, to survive;

thereby

Enmesh adversary in an amorphous, menacing, and unpredictable world of uncertainty, doubt, mistrust, confusion, disorder, fear, panic, chaos ... and/or fold adversary back inside himself;

thereby

Maneuver adversary beyond his moral-mental-physical capacity to adapt or endure so that he can neither divine our intentions nor focus his efforts to cope with the unfolding strategic design or related decisive strokes as they penetrate, splinter, isolate or envelop, and overwhelm him.

- **Tactics**

Observe-orient-decide-act more inconspicuously, more quickly, and with more irregularity as basis to keep or gain initiative as well as shape and shift main effort: to repeatedly and unexpectedly penetrate vulnerabilities and weaknesses exposed by that effort or other effort(s) that tie-up, divert, or drain-away adversary attention (and strength) elsewhere.

“Boyd used this pattern of problems to formulate the strategy for Operation Desert Storm. Marine Corps commandant General Charles Krulak wrote of his contribution, “The Iraqi army collapsed morally and intellectually under the onslaught of American and Coalition forces. John Boyd was an architect of that victory as surely as if he’d commanded a fighter wing or a maneuver division in the desert. His thinking, his theories, his larger than life influence, were there with us in Desert Storm.”¹⁷

“Boyd’s Grand Strategy

Boyd called for a grand strategy based on “a grand ideal, overarching theme, or noble philosophy that represents a coherent paradigm within which individuals as well as societies can shape and adapt to unfolding circumstances—yet offers a way to expose flaws of competing or adversary systems.”¹⁸ His advice for formulating such a grand strategy was in the form of a list of desirable products, which he called ingredients:

- **Insight**

Ability to peer into and discern the inner nature or workings of things.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

- **Initiative**

Internal drive to think and take action without being urged.

- **Adaptability**

Power to adjust or change in order to cope with new or unforeseen circumstances.

- **Harmony**

Power to perceive or create interaction of apparently disconnected events or entities in a connected way.¹⁹

“Boyd did not provide us with a clear and concise definition of a grand strategy that rings true with pursuing the timeless ends of deciding well (Wisdom), living well (the Good), contemplating well (Beauty), believing well (the Truth), cooperating well (Justice), and revering life well (Wholeness). From his thoroughly biological view, these timeless ends are nothing more than figments of our imaginations. They are things that we invent rather than discover.²⁰

“***The Grandest Possible Strategy***

To compete well, we need to consider the spatial boundaries that define the field. In the game of Reversi (Othello), the boundaries make the corner positions immune from attack. In the battle of Thermopylae, the boundaries defined by the Athenian controlled Gulf of Malia and the shoreline cliffs protected the Spartans and their allies from attack from the north and south.

“To compete well, we also need to consider the temporal boundaries that define the field. As John Boyd has shown us, people who are able to decide well more quickly can prevail by getting inside their competitors’ decision cycles.

“To compete well, we must not neglect to consider the moral boundaries that define the field. In battles for hearts and minds, groups of people who adopt a grander, nobler strategy take the higher moral ground, and so tend to be more successful in attracting the uncommitted; in magnifying their own spirit and strength; and in undermining the dedication and determination of their adversaries.²¹

“The grandest possible strategy is the strategy of pursuing the timeless ends of deciding well, living well, contemplating well, believing well, cooperating well, and revering life well.²² We may call this *the invariant strategy*.

“Adopting the invariant strategy calls for making the national goal subordinate to the grand strategy. From the theistic view of Abraham Lincoln, nations ought not to be concerned about whether God is on their side; but rather about being on the right side, for God is always right. Might may pretend to be right; but right makes might.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

¹¹ Coram, Robert, *The Fighter Pilot Who Changed the Art of War* (New York: Little Brown, 2002), chapter 8.”

¹² *Ibid.*, chapters 9-10.”

¹³ *Ibid.*, chapters 11-15.”

¹⁴ *Ibid.*, chapters 16-18.”

¹⁵ As we saw in the EOQ/RTS example, the inexhaustibility of knowledge effectively turns temporal problems that may involve learning into timeless problems. Hence, the only problems we ought to consider to be temporal problems are those in which we are certain that learning plays no significant role.”

¹⁶ *Patterns of Conflict* presentation, 2005 Defense in the National Interest revision, slide #5.”

¹⁷ Letter to the Editor, Gen. C. C. Krulak, *Inside the Pentagon*, March 23, 1997, p. 5., available online at <http://radio-weblogs.com/0107127/stories/2002/12/20/theEssentialBoyd.html> (18 December 2010).”

¹⁸ *Patterns of Conflict*, slide #144.”

¹⁹ *Ibid.* Note that Boyd’s use of the term ‘ingredients’ rather than ‘products’ was not a mistake. Deciding well is a process in which the output (products) of one cycle become the inputs (ingredients) of the next cycle.”

²⁰ Here again we can see the difference between the modern and invariant concepts of rationality. From the received view of modern science, for a model to be rational, it must be internally consistent with respect to the rules of logic. From the view of invariant science, for a model to be rational, it must not only be internally consistent with respect to the rules of logic but also be consistent with pursuing the invariant end of deciding well. From the invariant view of deciding well, the invariant factors of deciding well are things we discover rather than invent.”

²¹ *Patterns of Conflict*, slide #143.”

Changes in Version 2011.01.21

Preface, second paragraph

Changed “guide our actions **well**” to “guide our actions” in the last sentence.

Preface, tenth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “In the remaining **six** chapters, I describe timeless **logical** frameworks” to “In the remaining chapters, I describe timeless **conceptual** frameworks” in the last sentence.

Preface, third to last paragraph

Changed “Einstein’s **twin** claims” to “Einstein’s claims” in the last sentence.

Preface, second to last paragraph

Changed “the **final** chapter ,” to “the chapter **titled**” and “**rationality**” to “**reason**” in the first sentence.

Preface, last paragraph

Inserted the following paragraph:

“In the final chapter, *Reasoning Well*, I relate boundless pragmatism to twentieth-century analytical philosophy, nineteenth-century German idealism, and fractal geometry. I end with a short summary of the book.”

Chapter 1, *The EOQ/RTS Example*, first paragraph

Changed “**frame**” to “**view**” in the first and second sentences (2 occurrences).

Chapter 1, *Temporal versus Invariant Values*, third paragraph

Changed “**frame**” to “**view**” in the second and sixth sentences (2 occurrences).

Chapter 3, *Three Approaches to Overcoming Constraints*, second paragraph

“From the **frame** of mathematics, π is *computable*, which is to say that we can program **all of the steps for computing π into** a machine that does nothing more than follow **logical instructions**. In contrast, from the invariant **frame** of deciding well, π is not computable. The false claim that π is computable arises from reducing the actual problem of computing π to **a theoretical problem of computing π .**”

was changed to:

“From the **view** of mathematics, π is *computable*, which is to say that we can program a **Turing machine, an abstract computing machine** that does nothing more than follow **programmed rules, to compute π** . In contrast, from the invariant **view** of deciding well, π is not computable. The false claim that π is computable arises from reducing the actual problem of computing π to an abstract problem. **As we shall see throughout this work, the tendency of people who excel at abstract reasoning to ignore worldly constraints is common.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Three Approaches to Overcoming Constraints*, fourth paragraph, last sentence

“Because this approach relies on endless competition to produce the tools we need to pursue our chosen ends, we may call it *the timeless approach to overcoming constraints*.⁴”

was changed to:

“Over time, people competing for scarce resources will invent ever better means of computing. We we may call this *the timeless approach to overcoming constraints*.⁴”

Chapter 3, *Three Approaches to Overcoming Constraints*, last paragraph

Changed “frame” to “view” in the first sentence.

Chapter 3, *Public Order*, third paragraph

Changed “invariant” to “public” in the last sentence.

Chapter 3, *Public Order*, last paragraph

Changed “invariant” to “public” in the first sentence.

Chapter 3, *Invariant Public Order*, fourth paragraph

Changed “invariant” to “public” in the first sentence.

Chapter 3, *Invariant Public Order*, last paragraph

Changed “invariant approach to constraints” to “public approach to overcoming constraints” in the last sentence.

Chapter 3, *Zero Public Entropy*, fourth paragraph

Changed “invariant approach to constraints” to “public approach to overcoming constraints” in the second sentence.

Chapter 3, *Decision Tree Interpretations of Quantum Mechanics*, fifth paragraph

“From the modern view of physics, the decision tree interpretation of quantum mechanics appears to ignore such things as constraints on deciding well imposed by relativity theory and information theory. In contrast, from the invariant view of decision science, this interpretation hides details about the world as we currently understand it inside the model. This is consistent with the purpose of decision tree models, which is to help us find and solve problems within the domain of the public sciences.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“From the view of **modern** physics, the decision tree interpretation of quantum mechanics appears to ignore such things as constraints on deciding well imposed by relativity theory and information theory. In contrast, from the invariant view of decision science, this interpretation hides details about the world as we currently understand it inside the **decision** model. This is consistent with the purpose of **these** models, which is to help us find and solve problems **in the pursuit of the invariant end of deciding well.**”

Chapter 4, Refining Everyday Thinking, last six paragraphs

“From the modern view of believing well, the relation between the world and the descriptions we use to guide our actions is a problem that makes it harder to understand the world.³ In contrast, from the invariant view of deciding well, this relation is an opportunity to change the world for the better **by using descriptions of the invariant end of deciding well to help us find problems to solve. Every time we choose to act or not to act, we test our beliefs against experience. We bet our welfare on beliefs based upon imperfect knowledge. We learn from the experiences of other people. Other people, in turn, learn from our experiences. *We are both researchers and research subjects in the research program of, by, and for the people.***

“From the modern view of believing well, science concerns what the producers of knowledge are able to supply under current constraints. In contrast, from the invariant view of deciding well, science concerns not only what we are able to supply, but also what we need to decide well.⁴ Science is the self-similar, self-referential process of refining everyday thinking.⁵ So conceived, science contains its own metascience.⁶

“As we saw in the EOQ/RTS example, temporal views tend to blind us to timeless ends. In the case of believing well, the modern, temporal view tends to blind us to the Truth, and so to the Good, Wisdom, Justice, and Beauty.

“We can see the tendency of the modern view to blind us to timeless ends in the modern way of organizing academic fields into the *humanities*, the *social sciences*, and the *natural sciences*. From the modern view, which concerns what producers are able to supply under current constraints, this scheme makes sense. In contrast, from the invariant view of deciding well, this scheme does not make sense. To carve nature at its joints, we ought to replace these temporal categories with invariant categories. One possibility is to replace them with the *arts*, the *public sciences*, and the *true sciences*. The arts would include all fields that aim at the ring of Truth rather than the Truth itself. Like the humanities, the arts would include what human beings create. Unlike the humanities, the arts would help us pursue Beauty, and so the Good, the Truth, Wisdom, and Justice.⁷

“The public sciences would include all fields that aim at the Truth about the invariant factors of deciding well other than the Truth. The *moral sciences* would refine our beliefs about living well; the *political sciences* would refine our beliefs about governing

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

ourselves well; and the *decision sciences* would refine our beliefs about deciding well. Unlike the social sciences, the public sciences would embrace the timeless end of revering life well.

“The true sciences would include all fields that aim at the Truth about the Truth. Like the natural sciences, the true sciences would include all fields that seek to refine our beliefs about believing well without concern for the other invariant factors of deciding well. Unlike the natural sciences, the true sciences would not imply that the beliefs and actions of people are not a part of nature.”

“³ Most modern intellectuals prefer ‘reflexive’ to ‘recursive’ to describe this complex dynamic. Arguably, this is because they see their role as helping people believe well rather than helping them decide well. We see this in the distinction between Thomas Kuhn’s concept of a paradigm shift as a change in the way we conceive of the world and the popular concept of a paradigm shift as a change in the way we see the world that changes the world for the better. Kuhn cared about believing well per se. In contrast, the people who shifted Kuhn’s paradigm cared about believing well in order to decide well. They took a longer view.”

“⁴ In modern economic terms, the argument for a holistic approach to believing well put forth in this work concerns the demand as well as the supply side of believing well. Readers looking for supply-side arguments for a holistic approach to believing would do well to start with W. V. O. Quine’s “Two Dogmas of Empiricism.””

“⁵ The essential process of refining everyday thinking is self-similar in that it is the same regardless of what size problem we choose. It is self-referential in that it refers to itself. We may think of the essential process of refining everyday thinking as the essential process of ridding ourselves of ever more ignorance about the world. At the smallest problem scale that we can imagine, which currently is the problem scale of quantum mechanics, our ignorance takes the form of uncertain predictions. At the largest problem scale we can imagine, which is the problem that contains all other problems, our ignorance takes the form of incomplete descriptions of what we need to do in order to rid ourselves of ever more ignorance of the world. Between these two extremes, our ignorance takes the form of both uncertain predictions and incomplete descriptions of what we need to do in order to rid ourselves of ever more ignorance. In seeking to rid ourselves of ever more ignorance, we need to address both of these types of ignorance.”

“⁶ Arguably, this process consists of two levels of frames. There are basic frames that we use to choose solutions to temporal problems. These frames are analogous to the scientific frames of modern science. There are also invariant frames that we use to choose temporal problems, timeless problems, and the means for choosing timeless problems. These frames are analogous to the metaphysical frames of modern science. However, these frames are subject to empirical testing. Hence, we may reasonably call them *metascientific frames*. Philosophers may find in this boundless approach to believing well parallels to W. V. O. Quine’s naturalistic epistemology. A major difference is that the former embraces the whole of experience and the latter only

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

embraces those aspects of experience that directly concern believing well. From the invariant view of deciding well, the incompleteness of Quine's epistemology gave rise to both Jaegwon Kim's criticism of Quine's epistemology for not having a normative element and Morton White's argument with Quine over the scope of holistic pragmatism. The philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all invariant factors of deciding well."

"The arts ought to do more than shock us or speak to us. The arts ought to enlighten us. This is not to say that history is nothing more than literature. History is literature constrained by the methods and fashions of historians."

were changed to:

"From the modern view of believing well, the relation between the world and the descriptions we use to guide our actions is a problem that makes it harder to understand the world. In contrast, from the invariant view of deciding well, this relation is an opportunity to change the world for the better.³

Metascience

From the modern view of believing well, science concerns what the producers of knowledge are able to supply under current constraints. In contrast, from the invariant view of deciding well, science concerns not only what we are able to supply under current constraints, but also what we need to decide well.⁴

"The essential process of deciding well consists of two levels of models. There are models that we use to choose solutions to temporal problems. There are also models that we use to choose temporal problems, timeless problems, and the means for choosing timeless problems. We may call these *metascientific models*.⁵

"Metascientific models are part of science. We not only test these models through experience, but also base them on experience:

"Consider the process of pursuing some timeless end. Within the frame of pursuing this end, we define the timeless and transcendental ends tautologically. The timeless end is what we pursue when we pursue the transcendental end, and the transcendental end is what we pursue when we pursue the timeless end. This tautology tells us nothing about either the timeless or transcendental end.

"Now consider the proposition that it is only from experience that we learn. From within the frame of pursuing some timeless end, it is only from the experience of overcoming the constraints that hinder us in pursuing the timeless end that we learn more of the timeless end. For example, from within the frame of pursuing the timeless end of living well, it is only from the experience of overcoming some hunger that we learn of the greater good that results from overcoming this hunger. Similarly, from within the frame of pursuing the timeless end of believing well, it is only from the experience of overcoming

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

some ignorance that we learn of the greater truth that results from overcoming this ignorance.

“Next consider how this applies to pursuing the timeless end of deciding well. From within the frame of pursuing the timeless end of deciding well, it is only from experience in overcoming some foolishness that we learn of the greater wisdom that results from overcoming this foolishness. However, when this foolishness is what hinders us from seeing the relations between the invariant factors of deciding well, we learn that we can learn something of one invariant factor of deciding well by overcoming the constraints that hinder us from pursuing another invariant factor of deciding well. For example, overcoming a constraint that hinders us from pursuing the timeless end of living well, say the need for acceptance by what we currently believe to be members of our society, can help us learn more about the timeless end of believing well.

“From within the frame of pursuing the timeless end of believing well, learning something from other than the experience of overcoming a constraint that *directly* hinders us from believing well may appear to be learning something from other than experience. From the invariant view of deciding well, the cause of this false appearance lies in failing to recognize that pursuing the timeless end of believing well calls for us to pursue the timeless end of deciding well. Anything that hinders us from pursuing the timeless end of deciding well also hinders us from pursuing the timeless end of believing well.⁵

“*Invariant science contains its own metascience.*⁶

“**Two Types of Ignorance**

We may think of science as the process of ridding ourselves of ever more ignorance about the world. This ignorance takes the form of uncertain predictions and incomplete descriptions of what we need to do in order to rid ourselves of ever more ignorance. In seeking to rid ourselves of ever more ignorance, we need to address both of these types of ignorance. We do so by testing the models that we use to predict by how well these models help us predict and by testing the models that we use to explain causation by how well these models help us find problems to solve in pursuing the invariant end of deciding well.

“There exist extremes in which the invariant method of testing models does not work. At the smallest possible problem-scale level, we have no need to find problems to solve on a smaller problem-scale level, hence no need to explain causation. All of our ignorance on this level is in the form of uncertain predictions. For example, if the problem-scale level of quantum mechanics is the smallest possible problem-scale level, we have no need to find problems to solve on a smaller problem-scale level, hence no need to explain causation on the level of quantum mechanics. On the other hand, if the problem-scale level of quantum mechanics is not the smallest possible problem-scale level, we have a need to find problems to solve on a smaller level, hence the need to explain causation on the level of quantum mechanics. From a hidden-variables view of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

quantum mechanics, we ought to search smaller problem-scale levels for models that explain causation on the level of quantum mechanics. From a decision-oriented view of quantum mechanics, we ought to search smaller problem-scale levels for models that both explain causation on the level of quantum mechanics *and best help us pursue the invariant end of deciding well.*

“At the largest problem-scale level, which we may call *the transcendent level*, there is nothing left to learn, hence no need for either models that help us predict or models that help us explain. About this level, of which we can speak only in terms that we define tautologically, we can say nothing that is useful to the pursuit of the invariant end of deciding well.

“*Academic Fields*

From the invariant view of deciding well, we best pursue the timeless end of believing well by pursuing the invariant end of deciding well. This prescription for believing well will likely seem as strange to modern academics today as the Toyota system seemed to Western production managers in the early eighties. As we saw in the EOQ/RTS example, temporal views tend to blind us to timeless ends. In the case of believing well, modern views tend to blind us to the need to pursue the invariant factors of deciding well.

“We can see the tendency of modern views to blind us to the need to pursue the invariant factors of deciding well in the modern way of organizing academic fields into the *humanities*, the *natural sciences*, and the *social sciences*. From the modern view, which concerns what producers are able to supply under current constraints, this scheme makes sense. In contrast, from the invariant view of deciding well, it does not make sense. To carve nature at its joints, we ought to replace these temporal categories with categories based on the invariant factors of deciding well. One possibility is to replace them with the *arts*, the *true sciences*, and the *public sciences*.

“The arts would include all fields that aim **directly** at pursuing the **timeless end of contemplating well**. Like the humanities, the arts would include what human beings create. Unlike the humanities, the arts would help us pursue the timeless end of contemplating well, and through this pursuit all of the other invariant factors of deciding well.⁷

“The true sciences would include all fields that aim **directly** at the **timeless end of believing well**. Like the natural sciences, the true sciences would include all fields that seek to refine our beliefs about believing well. Unlike the natural sciences, the true sciences would not imply that the beliefs and actions of people are not a part of nature.

“The public sciences would include all fields that aim **directly** at the remaining invariant factors of deciding well. The *moral sciences* would include all fields that aim directly at the timeless end of living well; the *political sciences* include all fields that aim directly at the timeless end of cooperating well / governing ourselves well; and the *decision sciences* include all fields that aim directly at the timeless end of deciding well. Unlike

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

the social sciences, the public sciences would embrace the timeless end of revering life well.”

“³ Most modern intellectuals prefer ‘reflexive’ to ‘recursive’ to describe this complex dynamic. Arguably, this is because they see their role as helping people believe well rather than helping them decide well. We see this in the distinction between Thomas Kuhn’s concept of a paradigm shift as a change in the way we conceive of the world and the popular concept of a paradigm shift as a change in the way we see the world that changes the world for the better. Kuhn cared about believing well per se. In contrast, the people who shifted Kuhn’s paradigm cared about believing well in order to decide well. They took a longer view.”

“⁴ In modern economic terms, the argument for a holistic approach to believing well put forth in this work concerns the demand as well as the supply side of believing well. Readers looking for supply-side arguments for a holistic approach to believing would do well to start with W. V. O. Quine’s “Two Dogmas of Empiricism.””

“⁵ Philosophers of science may find in this boundless approach to believing well parallels to W. V. O. Quine’s naturalistic epistemology. A major difference is that the boundless approach embraces the whole of experience. From the invariant view of deciding well, the incompleteness of Quine’s epistemology gave rise to both Jaegwon Kim’s criticism of Quine’s epistemology for not having a normative element and Morton White’s argument with Quine over the scope of holistic pragmatism. The philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all invariant factors of deciding well.”

“⁶ In philosophy of science terms, metascience models are *a posteriori* rather than *a priori*. They only appear to be *a priori* to people who take too narrow a view of science.”

“⁷ The arts ought to do more than shock us or speak to us. The arts ought to enlighten us. This is not to say that history is nothing more than literature. History is literature constrained by the methods and fashions of historians.”

Chapter 4, *A Crude Look at the Whole*, first paragraph, first footnote, fifth sentence

Inserted the following sentence:

“This is consistent with the self-similar nature of the process that creates these networks, with the power law distribution of income, and with the fractal distribution of commodity price changes over time.”

Chapter 5, Liberalism, first paragraph

Changed “invariant approach to governing” to “public approach to governing” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Summary and Conclusion, title

Changed title to “Reasoning Well.”

Added the following quote:

““Philosophy, as I shall understand the word, is something intermediate between theology and science. Like theology, it consists of speculations on matters as to which definite knowledge has, so far, been unascertainable; but like science, it appeals to human reason rather than to authority, whether that of tradition or that of revelation. All *definite* knowledge — so I should contend — belongs to science; all *dogma* as to what surpasses definite knowledge belongs to theology. But between theology and science there is a No Man’s Land, exposed to attack from both sides; this No Man’s Land is philosophy.” — *Bertrand Russell*”

“¹ Russell, Bertrand, *A History of Western Philosophy* (New York: Simon and Schuster, 1967), p. xiii.”

Chapter 8, Reasoning Well, last paragraph

Added the following:

“[This is the stub of a chapter that relates boundless pragmatism to twentieth-century analytical philosophy, nineteenth-century German idealism, and fractal geometry.]”

Changes in Version 2011.02.05

Preface, ninth paragraph

Changed “concept” to “view” in the first sentence.

Preface, twelfth paragraph

Changed “the pursuit of the timeless end of deciding well” to “pursuing the timeless end of deciding well” in the first sentence.

Chapter 1, Temporal versus Timeless Values, second paragraph

Changed “governing ourselves well” to “working together well” in the second to last sentence.

Chapter 1, Temporal versus Timeless Values, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “timeless end of believing well” to “timeless end of believing well (the Truth)” in the last sentence.

Chapter 1, Temporal versus Timeless Values, fourth paragraph

Changed “timeless end of believing well” to “the Truth” in the first sentence.

Chapter 1, Temporal versus Timeless Values, seventh through last paragraphs

“From a temporal **frame**, the usefulness of concepts raises sociological questions about how people collectively choose concepts. These questions include who chooses, why they choose as they do, and why other people accept what they choose. In contrast, from a timeless **frame**, the usefulness of concepts raises the question of what system of concepts best helps us pursue the timeless end well. Addressing this question calls for us to **consider the ultimate end of believing well. Is it a means of pursuing the Good? Is it a means of pursuing the Truth, which is to say an end in itself? Is it a means of pursuing Justice? Is it all of these things? Is it all of these things and more?**

“From the timeless frame put forth in this work, the timeless end of believing well emerges from the endless pursuit of deciding well. By deciding well, we learn to decide ever more wisely, which includes learning ever more about believing well.

“Over time, we learn that there exist universal factors of deciding well that we can never have in excess. These universal, boundless factors include the timeless ends of living well (the Good) and believing well (the Truth). We need the Good to avoid deprivation, which hinders us from deciding well. We need the Truth to avoid ignorance, which also hinders us from deciding well.

“Over time, we learn that the endless pursuits of all universal, boundless factors of deciding well intertwine to form a single endless pursuit. Consider the relation between the pursuit of the Good and the pursuit of the Truth. We pursue the Good by deciding well, which calls for us to pursue the Truth. We pursue the Truth by deciding well, which calls for us to pursue the Good. Thus the pursuit of the Good and the pursuit of the Truth intertwine to form a single pursuit, which we may call the pursuit of Wisdom. The better we decide, the tighter we intertwine the pursuits of the Good and the Truth into the pursuit of Wisdom. By similar reasoning, all pursuits of universal, boundless factors of deciding well intertwine to form the pursuit of Wisdom. The better we decide, the tighter we intertwine the pursuits of these factors of deciding well into the pursuit of Wisdom.

“Over time, we learn that the timeless end of governing ourselves well (Justice) is a matter of cooperating well in the pursuit of the timeless end of deciding well. We need the help of others to pursue the timeless end of deciding well. We can never cooperate too well with other people, including people separated from us by great distances or long periods of time. Hence, the timeless end of governing ourselves well, which is also the timeless end of cooperating well, is a universal, boundless factor of deciding well.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The ancient Chinese provide us with a simple model for **cooperating** over great distances and long periods: “The debts that we owe to our ancestors we pay to our descendants.” Extending this model to all people, we can **cooperate** well across great distances and long periods with the universal moral rule: “The debts we cannot pay to whom they are due we pay to others by **deciding well**.” This includes the debts that we owe to those who provided us with the knowledge that we use freely. **Following this rule, we ought to pursue the timeless end of deciding well regardless of our current beliefs and circumstances. When we expand the problems we face to the limits of imagination, our problems become part of the problem that contains all other problems. The solution to this universal problem, which is pursuing the timeless end of deciding well, is the same for all of us. In the language of mathematics, the pursuit of the timeless end of deciding well is invariant with respect to reference frames based on beliefs and circumstances. Further, the universal, boundless factors of deciding well are invariant with respect to reference frames based on beliefs and circumstances.**

“Consider how we can use the invariant frame of deciding well to help us choose the best frame for judging how well we govern ourselves. From within each frame we consider, the frame we are in looks to be the best frame. We find ourselves in a mental hall of mirrors from which analytical techniques cannot help us escape. Twentieth-century philosopher John Rawls provides us with a timeless technique that can help us reason our way out of this quandary. He asks us to imagine what we should choose if we were ignorant of the circumstances of our birth.¹³ For this imagined original position of ignorance to produce a *completely just* end, we must consider to what end we should want to guide people if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of what species we will be and into what era we will be born. From behind this veil of complete ignorance, we should want all people to pursue the timeless end of revering life well.¹⁴ **We pursue this timeless end by deciding well.**

“Over time, we learn that the more our beliefs about pursuing the invariant end of deciding well fit together into a coherent whole and the better the problem we are considering fits this coherent whole, the more likely the problem we are considering is a good problem to solve. We may call the endless process of thinking deeply about how our beliefs about pursuing the invariant end of deciding well fit together into a coherent whole and of thinking deeply about how the problems we are considering fit this coherent whole the endless process of contemplating well. So conceived, the timeless end of contemplating well is an invariant factor of deciding well. We may call this timeless end *Beauty*.

“In summary, values are intellectual tools for helping us choose problems to solve. From a temporal frame of deciding well, people base their values on what they currently know. The source of this knowledge lies beyond the temporal process of deciding well. In contrast, from the invariant frame of deciding well, our values emerge from the invariant process of deciding well. Over time, we learn that we ought to pursue the invariant end of deciding well, hence the invariant factors deciding well. These factors include the timeless ends of living well, believing well, governing ourselves well, and contemplating well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“From a temporal **view**, the usefulness of concepts raises sociological questions about how people collectively choose concepts. These questions include who chooses, why they choose as they do, and why other people accept what they choose. In contrast, a timeless **view**, the usefulness of concepts raises the question of what system of concepts best helps us pursue the timeless end **we pursue**. Addressing this question calls for us to choose a frame, which in turn calls for us to choose a frame, which in turn calls for us to choose a frame, and so on to infinity. We best address this infinitely large problem by pursuing the timeless end of deciding well (Wisdom), which is the original problem we set out to address.

“From a logical view, exploring the relation between pursuing Wisdom and pursuing the Truth led us back to our original problem pursuing Wisdom, and so was fruitless. However, from the boundlessly pragmatic view put forth in this work, we have learned that pursuing Wisdom well calls for us to pursue the Truth well. In terms of learning-by-doing, we have learned that learning to pursue Wisdom ever better calls for us to learn to pursue the Truth ever better.

“A Pragmatic Model of Pursuing Wisdom

We can use this insight as the basis for a model of pursuing Wisdom. Building this model calls for repeating three basic steps. The first is discovering a member of the set of factors of pursuing Wisdom that we can never have in excess. The second is building a simple frame for pursuing each of this boundless factor by defining it and the means to it in terms of one another. The third is recognizing that Wisdom is a boundless factor of this boundless factor of pursuing Wisdom.

“The simplest model we can build using these three steps is the model in which the only member of the set of boundless factors of pursuing Wisdom is Wisdom. We build the frame for this simple model by defining Wisdom to be the timeless end of deciding well and by defining deciding well to be the means to Wisdom. We complete this simple model by recognizing that Wisdom is a boundless factor of pursuing Wisdom. This single-frame model follows the rules of logic for relating beliefs within frames. However, it is useless as a tool for helping us find problems to solve in pursuing Wisdom.

“To make this model useful in finding problems to solve in pursuing Wisdom, we need to add more frames to it. We can begin by adding a frame for pursuing the Truth. We do so by defining the Truth to be the timeless end of believing well and by defining believing well to be the means to the Truth. We then recognize that Wisdom is a boundless factor of pursuing the Truth.

“The addition of a second boundless factor of pursuing Wisdom allows us to explore the relations between the pursuits of the boundless factors of pursuing Wisdom. Pursuing Wisdom calls for us to pursue the Truth and pursuing the Truth calls for us to pursue Wisdom. Hence, the pursuits of Wisdom and the Truth intertwine to form a single

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

pursuit. The better we pursue Wisdom and pursue the Truth, the more tightly the pursuits of Wisdom and the Truth intertwine. If we pursued both of these timeless ends perfectly, the pursuit of the Truth and the pursuit of Wisdom would be the same pursuit. Because we do not pursue these timeless ends perfectly, it useful for us to think of them as separate pursuits, each subject to its own set of problems.

“This two-frame model helps us find problems to solve in pursuing Wisdom by telling us we need to weed out all problems that are not consistent with pursuing the Truth. However, this usefulness comes at the cost of consistency with the rules that we use to judge relations between beliefs within a frame. For example, from within the frame of pursuing Wisdom within this two-frame model of pursuing Wisdom, we pursue Wisdom; from within the frame of pursuing the Truth within this two-frame model of pursuing Wisdom, we pursue the Truth; and from within this two-frame model of pursuing Wisdom as a whole, we pursue both Wisdom and the Truth. The statement that we pursue the Truth is true from within the frame of pursuing the Truth and from within the model as a whole, but not from within the frame of pursuing Wisdom. Similarly, the statement that we pursue Wisdom is true from within the frame of pursuing Wisdom and from within the model as a whole, but not from within the frame of pursuing the Truth. *In general, any model of pursuing a timeless end that calls for learning by doing can never be both useful in pursuing the timeless end and completely consistent with the rules that we use to judge the relations between beliefs within a frame.*

“**More Complete Models of Pursuing Wisdom**

We naturally seek to survive and flourish, to live and to live well. In terms of modern biology, the timeless end of living well is a *teleonomic end*, an end determined by our biological programming. As such it is something that is independent of our beliefs and circumstances. In mathematical terms, it is *invariant* with respect to beliefs and circumstances.

“Adding the frame of pursuing the timeless end of living well (the Good) provides us with another means of judging problems to solve. We do so by defining the Good to be the timeless end of living well and living well to be the means to the Good. We then recognize that Wisdom is a boundless factor of the Good.

“Pursuing the boundless factors of pursuing Wisdom calls for us to fit our beliefs together into a coherent whole based on the symmetry of pursuing Wisdom well. We may call the process of thinking deeply about how our beliefs fit together into a coherent whole based on the symmetry of pursuing Wisdom *contemplating well* and the timeless end of contemplating well *Beauty*. So conceived, Beauty is a boundless factor of pursuing Wisdom.

“Pursuing the boundless factors of pursuing Wisdom also calls for us to work well with others, including people separated from us by great distances and long periods. We may call the timeless end of working together well, which is also the timeless end of cooperating well and the timeless end of governing ourselves well, *Justice*. Adding the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

frame of pursuing Justice to our multiple-frame model of pursuing Wisdom provides us with another way to judge problems to solve in pursuing Wisdom.

“The ancient Chinese provide us with a simple model for **working together** over great distances and long periods: “The debts that we owe to our ancestors we pay to our descendants.” Extending this model to all people, we can **work together** well across great distances and long periods **in pursuing Wisdom** with the universal moral rule: “The debts we cannot pay to whom they are due we pay to others by **pursuing Wisdom**.” This includes the debts that we owe to those who provided us with the knowledge that we use freely.

“Consider how we can use this rule for **working together** well to help us choose the best frame for judging how well we govern ourselves. From within each frame we consider, the frame we are in looks to be the best frame. We find ourselves in a mental hall of mirrors from which analytical techniques cannot help us escape. Twentieth-century philosopher John Rawls provides us with a timeless technique that can help us reason our way out of this quandary. He asks us to imagine what we should choose if we were ignorant of the circumstances of our birth.¹³ For this imagined original position of ignorance to produce a *completely just* end, we must consider to what end we should want to guide people if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of what species we will be and into what era we will be born. From behind this veil of complete ignorance, we should want all people to pursue the timeless end of revering life well, **which we may call Wholeness**.¹⁴ **Adding the frame of pursuing Wholeness to our multiple-frame model of pursuing Wisdom gives us another way to judge problems to solve in pursuing Wisdom.**

“Primary Factors of Deciding Well

Pursing Wisdom calls for us to refine our beliefs about pursuing Wisdom. When we are completely ignorant about the world, including ourselves, it is as reasonable for us to be completely open-minded about what values we ought to use to guide our decisions. As we learn ever more about the world, it is reasonable for us to become ever more discriminating about what values we use to guide our decisions. When we learn how foolish it is to ignore what we may learn by doing, it is reasonable for us to weed out values based on temporal ends. When we learn how pursuing any timeless end well calls for us to pursue Wisdom, which in turn calls for us to pursue all of the boundless factors of pursuing Wisdom, it is reasonable for us to weed out values that are not boundless factors of pursuing Wisdom.

“Some boundless factors of pursuing Wisdom are subordinate to others. For example, the timeless end of competing well (Winning) is subordinate to the timeless end of working together well (Justice). Competing well is a means of discovering which belief or set of beliefs best helps us pursue Wisdom. Working together well includes working together to discover which beliefs best help us pursue Wisdom. Similarly, the timeless end of contemplating well (Beauty) and the timeless end of reasoning well (Reason) are subordinate to the timeless end of believing well (the Truth). Contemplating well and reasoning well are parts of refining our beliefs about pursuing Wisdom.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We can imagine a set of boundless factors of pursuing Wisdom that are subordinate only to Wisdom. We may call these *primary factors of pursuing Wisdom*. By definition, Wisdom is a member of this set. Other members of this set include the Good, the Truth, and Justice. To include Wholeness in this set is to claim that Wholeness is not subordinate to the Good. This belief currently is, and will likely forever remain, a matter of faith, a matter of belief beyond reason.”

Chapter 2, entire chapter

Changed “invariant **frame**” to “invariant **view**” in all (7 occurrences).

Changed “invariant view of **deciding well**” to “view of **the multiple-frame model of pursuing Wisdom**” in all (9 occurrences).

Chapter 2, A Strategy for Living Well, last paragraph

Changed “**the invariant end of deciding Well**” to “**Wisdom**” in the last sentence.

Chapter 3, entire chapter

Changed “invariant view of **deciding well**” to “view of **the multiple-frame model of pursuing Wisdom**” in all (5 occurrences).

Changed “**the invariant end of deciding well**” to “**Wisdom**” in all (8 occurrences).

Changed “invariant factors of **deciding well**” to “**boundless factors of pursuing Wisdom**” in all (3 occurrences).

Chapter 3, Pursuing the Ring of Truth, second paragraph

Changed “**governing ourselves well**” to “**working together well**” in the fourth sentence.

Chapter 3, Pursuing the Ring of Truth, third paragraph

Changed “**the temporal view**” to “**a temporal view**” in the first sentence.

Chapter 3, Pursuing the Ring of Truth, last paragraph

Changed “the **invariant** factors of **deciding well**” to “the **boundless** factors of **pursuing Wisdom**” in the first and fourth sentences (2 occurrences).

Changed “**timeless end of believing well**” to “**Truth**” in the first sentence.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, fifth paragraph

Changed “**the pursuit of the Wisdom**” to “**pursuing Wisdom**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, The Elephant in the Room, first paragraph

Changed “**the** Wisdom” to “Wisdom” in the first sentence.

Chapter 4, entire chapter

Changed “**invariant** factors of **deciding well**” to “**boundless** factors of **pursuing Wisdom**” in all (6 occurrences).

Changed “**invariant** view of **deciding well**” to “view of **the multiple-frame model of pursuing Wisdom**” in all (8 occurrences).

Changed “pursuing **the invariant end of deciding well**” to “pursuing **Wisdom**” in all (4 occurrences).

Changed “the **timeless end of living well**” to “the **Good**” in all (3 occurrences).

Changed “the **timeless end of believing well**” to “the **Truth**” in all (9 occurrences).

Changed “**the timeless end of deciding well**” to “**Wisdom**” in all (5 occurrences).

Chapter 4, Refining Everyday Thinking, last paragraph, footnote

Changed “**decide well**” to “**to pursue Wisdom**” in the third sentence.

Chapter 4, *Two Types of Ignorance*, last paragraph

Changed “**the** pursuit of **the invariant end of deciding well**” to “pursuing **Wisdom**” in the last sentence.

Chapter 4, *Academic Fields*, third paragraph

Changed “**the timeless end of contemplating well**” to “**Beauty**” in all (2 occurrences).

Chapter 4, *Academic Fields*, last paragraph

Changed “**the timeless end of cooperating well / governing ourselves**” to “**Justice**” in the second sentence.

Changed “**the timeless end of revering life well**” to “**Wholeness**” in the last sentence.

Chapter 4, Refining Deciding Well, first paragraph, footnote

Changed “**timeless end of living well (the Good)**” to “the Good” in the second to last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, entire chapter

Changed “invariant view of deciding well” to “view of the multiple-frame model of pursuing Wisdom” in all (7 occurrences).

Changed “pursuing the invariant end of deciding well” to “pursuing Wisdom” in all (2 occurrences).

Chapter 5, Sovereignty, first paragraph

Changed “governing ourselves well” to “working together well, which we may also call governing ourselves well,” in the first sentence.

Chapter 5, Sovereignty, third paragraph, footnote

Changed “deciding well” to “pursuing Wisdom” in the fourth sentence.

Changed “fall” to “fail” in the last sentence.

Chapter 5, Liberalism, second paragraph

Changed “the timeless end of governing ourselves well (Justice)” to “Justice” in the third sentence.

Chapter 6, entire chapter

Changed “invariant view of deciding well” to “view of the multiple-frame model of pursuing Wisdom” in all (2 occurrences).

Changed “the invariant end of deciding well” to “Wisdom” in all (5 occurrences).

Chapter 6, A Common Timeless End, first paragraph

“Materialists and dualists can find a common timeless end in the publicly proclaimed and practiced timeless end of revering life well. We need to pursue this timeless end of revering life well in order to pursue Wisdom. Further, we pursue the timeless end of revering life well by deciding well. Hence, this timeless end of revering life well is an invariant factor of deciding well. The timeless pursuit of revering life well intertwines with the timeless pursuits of all of the invariant factors of deciding well . We may call this common timeless end *Wholeness*. Pursuing Wholeness is part of pursuing the Good, the Truth, Wisdom, Justice, and Beauty; and pursuing the Good, the Truth, Wisdom, Justice, and Beauty are parts of pursuing Wholeness.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Materialists and dualists can find a common timeless end in the timeless end of revering life well, which we may call *Wholeness*. From both views, *Wholeness* is a boundless factor of pursuing *Wisdom*. Pursuing *Wisdom* calls for us to pursue *Wholeness*. In turn, pursuing *Wholeness* calls for us to pursue *Wisdom*. From a materialist view, *Wholeness* is subordinate to the Good. From a dualist view, *Wholeness* is a primary factor of pursuing *Wisdom*.”

Chapter 7, entire chapter

Changed “invariant view of deciding well” to “view of the multiple-frame model of pursuing *Wisdom*” in all (7 occurrences).

Changed “the invariant end of deciding well” to “*Wisdom*” in all (6 occurrences).

Chapter 7, second paragraph

“We pursue the timeless end of competing well by pursuing the timeless end of deciding well. We also pursue the timeless end of deciding well by pursuing the timeless end of competing well. Hence, the timeless end of competing well is an invariant factor of deciding well. Pursuing the timeless end of competing well intertwines with pursuing the timeless ends of living well, believing well, contemplating well, working together well, deciding well, and revering life well. The better we decide, the more tightly these endless pursuits intertwine.”

was deleted.

Chapter 7, new second paragraph, last sentence

“The surest means of achieving this temporal end is for all people to *knowingly* pursue *Wisdom*.”

was changed to:

“The surest means of achieving this end is to pursue *Wisdom* *deliberately*.”

Chapter 7, Temporal OODA Loop Analysis, first paragraph

Changed “pursue the timeless end of competing well” to “compete well” in the last sentence.

Chapter 7, *Boyd's Grand Strategy*, second paragraph, first sentence

“Boyd did not provide us with a clear and concise definition of a grand strategy that rings true with pursuing the timeless ends of deciding well (*Wisdom*), living well (*the Good*), contemplating well (*Beauty*), believing well (*the Truth*), cooperating well (*Justice*), and revering life well (*Wholeness*).”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“Boyd did not provide us with a clear and concise definition of a grand strategy that rings true with pursuing the **boundless factors of pursuing Wisdom**.”

Chapter 7, *The Grandest Possible Strategy*, last two paragraphs

“The grandest possible strategy is the strategy of pursuing **the timeless ends of deciding well, living well, contemplating well, believing well, cooperating well, and revering life well**. We may call this *the invariant strategy*.”

“Adopting **the invariant** strategy calls for making the national goal **identical to the grand strategy**. From the theistic view of Abraham Lincoln, nations ought not to be concerned about whether God is on their side; but rather about being on the right side, for God is always right. Might may pretend to be right; but right makes might.”

were changed to:

“The grandest possible strategy is the strategy of pursuing **Wisdom**. Adopting **this** strategy calls for making the national goal **pursuing Wisdom**. From the theistic view of Abraham Lincoln, nations ought not to be concerned about whether God is on their side; but rather about being on the right side, for God is always right. Might may pretend to be right; but right makes might.”

Appendix A, *Producing Ever More Leanly*, first paragraph

Changed “**invariant** view of **deciding well**” to “view of **the multiple-frame model of pursuing Wisdom**” in the first sentence.

Changes in Version 2011.02.12

Chapter 1, *More Complete Models of Pursuing Wisdom*, third paragraph, last sentence

Added the footnote:

“¹³ Philosophers of science may find in this boundless approach to believing well parallels to W. V. O. Quine’s naturalistic epistemology (theory of knowledge). A major difference is that the boundless approach embraces the whole of experience. From the invariant view of deciding well, the incompleteness of Quine’s epistemology gave rise to both Jaegwon Kim’s criticism of Quine’s epistemology for not having a normative element (pursuing the Good) and Morton White’s argument with Quine over the scope of holistic pragmatism (pursuing all of the boundless factors of deciding well). *The*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of pursuing Wisdom.”

Chapter 2, Invariant Tools for Living Well, first paragraph

Changed “**frame**” to “**view**” in the first sentence.

Chapter 2, Profit, last paragraph

Changed “**deciding well**” to “**pursuing Wisdom**” in the last sentence.

Chapter 2, Profit, last paragraph

Changed “**deciding well**” to “**pursuing Wisdom**” in the last sentence.

Chapter 4, *Metascientific Models*, second paragraph

“The essential process of deciding well consists of **two levels of models**. **There are** models that we use to choose solutions to temporal problems. **There are also** models that we use to choose temporal problems, timeless problems, and the means for choosing timeless problems. We may call these *metascientific models*.”

was changed to:

“The essential process of deciding well consists of models that we use to choose solutions to temporal problems **and** models that we use to choose temporal problems, timeless problems, and the means for choosing timeless problems. We may call **the models we use to choose problems** *metascientific models*.”

Chapter 4, *Metascientific Models*, third paragraph, first blocked paragraph

“Consider the process of pursuing **some** timeless end. Within the frame of pursuing this end, we define the timeless and transcendental ends tautologically. The timeless end is what we pursue when we pursue the transcendental end, and the transcendental end is what we pursue when we pursue the timeless end. This tautology tells us nothing about either the timeless or transcendental end.”

was changed to:

“Consider the process of pursuing **a** timeless end. Within the frame of pursuing this end, we define the timeless **end** and **the means of pursuing this timeless end** tautologically. This tautology tells us nothing about either the timeless **end** or **the means to it**.”

Chapter 4, *Metascientific Models*, third paragraph, second blocked paragraph

Changed “**some**” to “**a**” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *Metascientific Models*, third paragraph, last blocked paragraph

Changed “believing well” to “pursuing the Truth” in the second sentence.

Deleted the footnote:

“⁵ Philosophers of science may find in this boundless approach to believing well parallels to W. V. O. Quine’s naturalistic epistemology. A major difference is that the boundless approach embraces the whole of experience. From the invariant view of deciding well, the incompleteness of Quine’s epistemology gave rise to both Jaegwon Kim’s criticism of Quine’s epistemology for not having a normative element and Morton White’s argument with Quine over the scope of holistic pragmatism. The philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of pursuing Wisdom.”

Chapter 4, *Metascientific Models*, third paragraph, last sentence, footnote

“⁶ In philosophy of science terms, metascience models are *a posteriori* rather than *a priori*. They only appear to be *a priori* to people who take too narrow a view of science.”

was deleted.

Chapter 4, Refining Deciding Well, third paragraph

Changed “decide well” to “pursue Wisdom” in the first two sentences.

Chapter 4, Refining Deciding Well, last paragraph

Changed “deciding well” to “pursuing Wisdom” in the first sentence.

Changed “how to decide well” to “how best to pursue Wisdom” in the last sentence.

Chapter 4, *Learning from Experience*, first paragraph

Changed “decide well” to “pursue Wisdom” in the first sentence.

Chapter 4, *A Crude Look at the Whole*, first paragraph

Changed “deciding well” to “pursuing Wisdom” in the second and eighth sentences (2 occurrences).

Chapter 4, *A Crude Look at the Whole*, last paragraph

Changed “deciding well” to “pursuing Wisdom” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, Useful Reminders, first paragraph

“We pursue the Truth by **deciding well**. **Deciding well** calls for us to judge not only footholds and handholds but also paths leading to **the Good, the Truth, Wisdom, Justice, and Beauty**. In theory, it also calls for us to consider these timeless ends in even our smallest decisions — to see the world in a grain of sand.”

was changed to:

“We pursue the Truth by **pursuing Wisdom**. **Pursuing Wisdom** calls for us to judge not only footholds and handholds but also paths leading to **Wisdom, hence to all of the boundless factors of pursuing Wisdom**. In theory, it also calls for us to consider these timeless ends in even our smallest decisions — to see the world in a grain of sand.”

Chapter 5, *A Sovereign Story of Deciding Well*, title

Changed title to “*A Sovereign Story for Pursuing Wisdom*.”

Chapter 5, *A Sovereign Story for Pursuing Wisdom*, first paragraph

Changed “**deciding well**” to “**pursuing Wisdom**” in the last sentence.

Chapter 5, *A Sovereign Story for Pursuing Wisdom*, second paragraph, blocked paragraph

“We hold these beliefs to be true beyond all doubt. All people have the sovereign right to **decide ever more wisely**. To secure this right, individuals form governments that derive their powers from the consent of the governed. Whenever a government hinders **deciding ever more wisely**, it is the right of the governed to alter or to abolish it, and to form a new government based on what they believe most likely to help them **decide ever more wisely**.”

was changed to:

“We hold these beliefs to be true beyond all doubt. All people have the sovereign right to **pursue Wisdom**. To secure this right, individuals form governments that derive their powers from the consent of the governed. Whenever a government hinders **pursuing Wisdom**, it is the right of the governed to alter or to abolish it, and to form a new government based on what they believe most likely to help them **pursue Wisdom**.”

Chapter 5, *A Sovereign Story of Deciding Well*, last paragraph

Changed “happiness ever more wisely, hence ever more justly, **ever more truly, and ever more coherently**” to “happiness ever more wisely, hence ever more justly” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “it should promote **deciding well** better than any other **sovereign rights story**” to “**this sovereign rights story** should promote **pursuing Wisdom better than any other**” in the third sentence.

Changed “a story **of deciding well**” to “a **sovereign rights** story **for pursuing Wisdom**” in the first sentence of the last footnote.

Chapter 5, *A Sovereign Story for Pursuing Wisdom*, last paragraph, last footnote

Changed “**A timeless science story**” to “**A sovereign rights story for pursuing Wisdom**” in the first sentence.

Chapter 5, *Lower Trade Barriers*, first paragraph

Changed “**deciding well**” to “**pursuing Wisdom**” in the first sentence.

Changed “**decides well**” to “**pursues Wisdom**” in the last sentence.

Chapter 5, *Promote Savings for Welfare*, entire subsection

Changed “**deciding well**” to “**pursuing Wisdom**” in all (2 occurrences).

Changed “**decide well**” to “**pursue Wisdom**” in all (8 occurrences).

Chapter 5, *Promote Deciding Well, not Stability*, title

Changed title to “*Promote **Pursuing Wisdom, not Temporal Order.***”

Chapter 5, *Promote Pursuing Wisdom, not Temporal Order*, second paragraph

Changed “**stability**” to “**temporal order**” in the first three sentences (3 occurrences).

Changed “**deciding well**” to “**pursuing Wisdom**” in the first two sentences (2 occurrences).

Changed “the invariant values of the Good, the Truth, Wisdom, Justice, and Beauty” to “**Wisdom, hence over the Good, the Truth, Justice, Wholeness, and all of the boundless factors of pursuing Wisdom**” in the last sentence.

Chapter 5, *Promote Pursuing Wisdom, not Temporal Order*, last paragraph

Changed “**invariant values well**” to “**Wisdom**” in the first sentence.

Chapter 5, *Liberalism*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “decide well, which is to say on the sovereign right to decide ever more wisely” to “pursue Wisdom” in the second sentence.

Chapter 5, Liberalism, third paragraph

Changed “deciding well” to “pursuing Wisdom” in the last three sentences (2 occurrences).

Changed “decide well” to “pursue Wisdom” in the last two sentences (2 occurrences).

Chapter 7, second paragraph

Changed “decide well” to “pursue Wisdom” in the second sentence (2 occurrences).

Chapter 7, *Boyd's Grand Strategy*, first paragraph, last footnote, last two sentences

“Note that Boyd’s use of the term ‘ingredients’ rather than ‘products’ was not a mistake. Deciding well is a process in which the output (products) of one cycle become the inputs (ingredients) of the next cycle.”

was changed to:

“Note that deciding well is a recursive process, a process in which the products of one cycle become the ingredients of the next cycle.”

Chapter 7, *Boyd's Grand Strategy*, last paragraph, footnote

“²⁰ Here again we can see the difference between the modern and invariant concepts of rationality. From the received view of modern science, for a model to be rational, it must be internally consistent with respect to the rules of logic. From the view of invariant science, for a model to be rational, it must not only be internally consistent with respect to the rules of logic but also be consistent with pursuing the invariant end of deciding well. From the invariant view of deciding well, the invariant factors of deciding well are things we discover rather than invent.”

was deleted.

Chapter 7, *The Grandest Possible Strategy*, second paragraph

Changed “competitors” to “adversaries” in the last sentence.

Chapter 7, *The Grandest Possible Strategy*, last paragraph

“The grandest possible strategy is the strategy of pursuing Wisdom. Adopting this strategy calls for making the national goal pursuing Wisdom. From the theistic view of Abraham Lincoln, nations ought not to be concerned about whether God is on their side;

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

but rather about being on the right side, for God is always right. Might may pretend to be right; but right makes might.”

was changed to:

“The grandest possible strategy is the strategy of pursuing Wisdom. Adopting this strategy calls for making the national goal pursuing Wisdom. In the words of Abraham Lincoln, ‘Let us have faith that right makes might, and in that faith, let us, to the end, dare to do our duty as we understand it.’²¹”

²¹ This public profession was the culmination of Lincoln’s address at The Cooper Union for the Advancement of Science and Art (New York City, 27 Feb. 1860).”

Appendix A, Quotation

“‘Less is more.’ — *Robert Browning*¹”

¹ Browning, Robert “Andrea del Sarto,” in *English Poetry III: From Tennyson to Whitman*, vol. XLII, The Harvard Classics (New York: P. F. Collier and Son, 1909–1914), reprinted in Bartelby.com, <<http://www.bartleby.com/42/675.html>> (24 December 2010).”

was changed to:

“‘Finding a problem is like finding a diamond.’ — *Toyota kaizen slogan*”

Changes in Version 2011.02.19

Preface, second to last paragraph, footnote, last sentence

“I end with a short summary of the book.”

was deleted.

Chapter 1, entire chapter

Changed “working together well” to “living and working together well” in all (5 occurrences).

Chapter 3, Public Order, second paragraph

Changed “modern social science” to “the modern economic goal of living well” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *Two Types of Ignorance*, last two paragraphs

Switched the order of the smallest and largest scale information.

Chapter 4, *Primary Factors of Pursuing Wisdom*, last paragraph, third and fourth sentences

“By definition, Wisdom is a member of this set. Other members of this set include the Good, the Truth, and Justice.”

were changed to:

“Members of this set include the Good, the Truth, and Justice.”

Chapter 4, *Academic Fields*, last paragraph

Changed “Wholeness” to “the pursuit of the Truth about the Good, Justice, and Wisdom” in the last sentence.

Chapter 4, *Refining Deciding Well*, first paragraph, footnote, last two sentences

“Hidden in theories that describe the world as it is in the process of becoming is a description of a prescriptive program, which is that living things are programmed to pursue the Good. Biologists call this a teleonomic program.”

were changed to:

“Hidden in theories that describe the world as it is in the process of becoming is a description of a prescriptive program: living things pursue the Good.”

Chapter 5, *Sovereignty*, first paragraph

Changed “working together well” to “living and working together well” in the first sentence.

Chapter 5, *Lower Trade Barriers*, first paragraph, footnote, end

Added the sentences:

“Note that the classic argument for free trade, which is the argument of comparative advantage first put forth by Robert Torrens in 1815, ignores the possibility of learning. Including this possibility strengthens the case for free trade.”

Changes in Version 2011.02.28

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, second to last paragraph

Changed “twentieth-century analytical philosophy, nineteenth-century German idealism,” to “nineteenth-century German idealism, twentieth-century analytical philosophy,” in the first sentence.

Chapter 1, *A Pragmatic Model of Pursuing Wisdom*, first paragraph

Changed “simple frame for pursuing each of this” to “useful frame for pursuing each” in the third sentence.

Chapter 1, *A Pragmatic Model of Pursuing Wisdom*, second paragraph

Changed “for relating beliefs within frames” to “, which are the rules that we use to judge the relations between beliefs within a frame” in the fourth sentence.

Chapter 1, *A Pragmatic Model of Pursuing Wisdom*, last paragraph

Changed “that we use to judge relations between beliefs within a frame” to “of logic” in the second sentence.

Changed “useful” to “most useful” and “that we use to judge relations between beliefs within a frame” to “of logic” in the last sentence.

Chapter 4, *Academic Fields*, fourth paragraph, second sentence

“Like the natural sciences, the true sciences would include all fields that seek to refine our beliefs about believing well.”

was deleted.

Chapter 8, beginning

Added the following:

“The Rules of Reason

Pursuing ends calls for overcoming our ignorance of the world. This ignorance takes the form of uncertain predictions and incomplete explanations of causation. Uncertain predictions hinder us from solving problems. Incomplete explanations hinder us from finding the best problems to solve.

“Models of the world that we use to predict and explain relate beliefs about the world in ways that are useful in pursuing ends. We may call excellence in relating beliefs *reason* and the rules we use to relate beliefs *rules of reason*.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Excellence in relating beliefs depends on the type of end we choose to pursue. When we pursue temporal ends, we seek to solve given problems. Excellence in relating beliefs concerns reason within the frame that describes the given problem. Again, we call the rules of reason within a frame *rules of logic*. When we pursue temporal ends, the rules of reason are the rules of logic.

“When we pursue timeless ends, we seek not only to solve problems within a frame but also to find the best frame for pursuing our chosen timeless end. We may call the rules of reason for finding the best frame for pursuing a timeless end *rules of dialectics*. When we pursue timeless ends, the rules of reason include not only the rules of logic but also the rules of dialectics.

“When we pursue the invariant end of Wisdom, we seek not only to solve problems within a frame but also to find the best problems to solve in pursuing Wisdom. We may call the rules of reason for finding the best problems to solve in pursuing Wisdom *rules of Beauty beyond logic*. When we pursue the invariant end of Wisdom, the rules of reason include not only the rules of logic but also the rules of Beauty beyond logic. *When we pursue the invariant end of Wisdom, the rules of reason are the rules of Beauty.*

“Reason in Modern Western Thought

[This is the bud of a section that relates boundless pragmatism to modern Western thought.]

“Summary”

Chapter 8, last paragraph

“[This is the stub of a chapter that relates boundless pragmatism to twentieth-century analytical philosophy, nineteenth-century German idealism, and fractal geometry.]”

was deleted.

Changes in Version 2011.03.04

The following changes are the result of an edit by Pat Vaughn.

Preface, third paragraph

Changed “need to decide well” to “need **in order** to decide well” in the fourth sentence.

Preface, fourth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**recursively** applying a sequence of decision-making steps” to “**repeatedly** applying a sequence of decision-making steps **such that the result of one cycle becomes the basis of the next cycle**” in the second sentence.

Changed “**sequence**” to “**recursive process**” in the third sentence.

Preface, seventh paragraph

Changed “**is not consistent with**” to “**lies beyond the bounds of**” in the sixth sentence.

Changed “**is consistent with**” to “**lies within the bounds of**” in the last sentence.

Preface, eleventh paragraph

Changed “expansion of market size” to “**the** expansion of market size” in the last sentence.

Preface, eleventh through seventeenth paragraph

Replaced italics in chapter titles with quotations (seven occurrences).

Preface, thirteenth through sixteenth paragraph

Deleted the phrase “the chapter titled” (four occurrences).

Chapter 1, *The EOQ/RTS Example*, first paragraph

Changed “economic order quantity model” to “economic order quantity (**EOQ**) model” in the fourth sentence.

Changed “rapid tool setting model” to “rapid tool setting (**RTS**) model” in the last sentence.

Chapter 1, *The EOQ/RTS Example*, second paragraph

Changed “**economic order quantity** (EOQ) model” to “EOQ model” in the tenth sentence.

Chapter 1, *The EOQ/RTS Example*, third paragraph

Changed “**their** workers learn” to “workers learn” in the third sentence.

Chapter 1, Temporal versus Invariant Values, fourth paragraph

Changed “**valid reasoning**” to “**reasonable**” in the second to last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *A Pragmatic Model of Pursuing Wisdom*, last paragraph

Changed “within this two-frame model of pursuing Wisdom” to “within this two-frame model” in the third sentence.

Chapter 1, *More Complete Models of Pursuing Wisdom*, last paragraph

Changed “to guide people” to “people to pursue” in the fifth sentence.

Chapter 2, *Pleasure and Pain*, tenth paragraph

Changed “moderate good fortune” to “good fortune” in the last sentence.

Chapter 2, *Production*, first paragraph, last sentence

“As we saw in the rapid tool setting (RTS) example, producing well calls for learning-by-doing., for pushing back our efficiency frontiers.”

was changed to:

“As we saw in the rapid tool setting (RTS) example, producing well calls for learning-by-doing. In modern economic terms, it calls for pushing back our production-possibility frontiers.”

Chapter 3, *Zero Public Entropy*, first paragraph

Changed “that classical physics predicts” to “than classical physics predicts” in the second to last sentence.

Chapter 3, *Decision-Oriented Interpretations of Decision Science*, second paragraph

Italicized “statistical” in the first sentence.

Chapter 3, *The Elephant in the Room*, last paragraph

Changed “to solve, the essential ” to “to solve the essential” in the second sentence.

Chapter 4, *Useful Reminders*, second paragraph

Changed “don’t” to “do not” in the third sentence.

Chapter 5, *A Sovereign Story for Pursuing Wisdom*, second paragraph

Changed “believe most” to “believe is most” in the third sentence.

Chapter 5, *Lower Trade Barriers*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “to a person” to “to us” in the last sentence.

Chapter 7, *Prelude to Boyd's Idea of Competing in Time*, first paragraph

Changed “, and” to “and,” in the last sentence.

Chapter 7, *Boyd's Grand Strategy*, first paragraph, last footnote

Changed “recursive process” to “a recursive process” in the last sentence.

Changes in Version 2011.03.12

Preface, fourth paragraph

Changed “subject to constraints” to “a public process subject to constraints” in the third sentence.

Preface, eighth paragraph, last two sentences

“Unlike the Aristotelian pursuit, this pursuit involves not only rules that bind beliefs together into **logical frameworks**, but also rules for binding **logical frameworks** together into a coherent whole. The source of **this** coherence is the symmetry of pursuing the timeless end of deciding well.”

were changed to:

“Unlike the Aristotelian pursuit, this pursuit involves not only rules that bind beliefs together into **coherent models of the world**, but also rules for binding **these models** together into a coherent whole. The source of **the** coherence **for binding these models together** is the symmetry of pursuing the timeless end of deciding well.”

Chapter 1, *Choosing Frames Well*, first paragraph, last two sentences

“Over time, we **refine these structures using rules for refining** these structures. We may call **the resulting logically coherent structures for reducing our sensations of the world to concepts frames**.⁵”

“⁵ We ought not to confuse frames with unrefined structures of concepts, which we may call conceptual frameworks. Frames provide us with a single, logically coherent view of the world. To prevent logical mistakes known as fallacies of ambiguity, frames do not contain terms that refer to more than one concept. In contrast, conceptual frameworks may contain terms that refer to more than one concept. This ambiguity allows the creation of useful models of reality that are not supported by reason. As we shall see, the endless process of refining everyday thinking includes replacing ambiguous terms with

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

unambiguous terms. For now, we may simply say that conceptual frameworks are to everyday thinking what frames are to science.”

was changed to:

“Over time, we reduce the ambiguity of these structures. Sources of ambiguity within these structures include terms that refer to more than one concept and pairs of concepts defined in terms of one another. We may call conceptual structures from which we have removed all removable ambiguity *frames*.”

Chapter 1, Temporal versus Invariant Values, last paragraph

Changed “logical view” to “view that does not allow learning” in the third sentence.

Changed “the boundlessly pragmatic view put forth in this work” to “a view that does allow learning by doing” in the third sentence.

Chapter 1, A Pragmatic Model of Pursuing Wisdom, third paragraph, first two sentences

“This single-frame model follows the rules of logic, which are the rules that we use to judge the relations between beliefs within a frame. However, it is useless as a tool for helping us find problems to solve in pursuing Wisdom.”

were appended to the third paragraph and changed to:

“The tautological way in which we define the timeless end of pursuing Wisdom makes this single-frame model useless as a tool for helping us find problems to solve in pursuing Wisdom.”

Chapter 1, A Pragmatic Model of Pursuing Wisdom, last paragraph

“This two-frame model helps us find problems to solve in pursuing Wisdom by telling us we need to weed out all problems that are not consistent with pursuing the Truth. However, this usefulness comes at the cost of consistency with the rules of logic. For example, from within the frame of pursuing Wisdom within this two-frame model, we pursue Wisdom; from within the frame of pursuing the Truth within this two-frame model of pursuing Wisdom, we pursue the Truth; and from within this two-frame model of pursuing Wisdom as a whole, we pursue both Wisdom and the Truth. The statement that we pursue the Truth is true from within the frame of pursuing the Truth and from within the model as a whole, but not from within the frame of pursuing Wisdom. Similarly, the statement that we pursue Wisdom is true from within the frame of pursuing Wisdom and from within the model as a whole, but not from within the frame of pursuing the Truth. *In general, any model of pursuing a timeless end that calls for learning by doing can never be both most useful in pursuing the timeless end and completely consistent with the rules of logic.*”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“This two-frame model helps us find problems to solve in pursuing Wisdom by weeding out problems that are not consistent with pursuing the Truth. However, this usefulness comes at the cost of consistency with the rules of logic. For example, the statement that we pursue the Truth is true from within the frame of pursuing the Truth and from within the **multiple-frame** model as a whole, but not from within the frame of pursuing Wisdom. Similarly, the statement that we pursue Wisdom is true from within the frame of pursuing Wisdom and from within the model as a whole, but not from within the frame of pursuing the Truth.¹²”

“¹² For more on this, read the chapter on reasoning well.”

Chapter 1, *More Complete Models of Pursuing Wisdom*, last paragraph, second footnote

“More accurately, this thought experiment calls for us to imagine what we would want if before we were born we had complete knowledge of everything except knowledge of the circumstances of our birth or births.”

was deleted.

Chapter 1, *Refining Everyday Thinking*, second paragraph

Changed “logical” to “beautiful” in the first sentence.

Chapter 4, *A Crude Look at the Whole*, first paragraph, first footnote

Changed “additional turbulence” to “turbulence” in the last sentence.

Chapter 8, *The Rules of Reason*, title

Changed title to “Rules of Reason.”

Chapter 8, *Rules of Reason*, entire section

“**Rules of Reason**

Pursuing ends calls for overcoming our ignorance of the world. This ignorance takes the form of uncertain predictions and incomplete explanations of causation. Uncertain predictions hinder us from solving problems. Incomplete explanations hinder us from finding the best problems to solve.

“Models of the world that we use to predict and explain relate beliefs about the world in ways that are useful in pursuing ends. We may call excellence in relating beliefs *reason* and the rules we use to relate beliefs *rules of reason*.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Excellence in relating beliefs depends on the type of end we choose to pursue. When we pursue temporal ends, we seek to solve given problems. Excellence in relating beliefs concerns reason within the frame that describes the given problem. Again, we call the rules of reason within a frame *rules of logic*. When we pursue temporal ends, the rules of reason are the rules of logic.

“When we pursue timeless ends, we seek not only to solve problems within a frame but also to find the best frame for pursuing our chosen timeless end. We may call the rules of reason for finding the best frame for pursuing a timeless end *rules of dialectics*. When we pursue timeless ends, the rules of reason include not only the rules of logic but also the rules of dialectics.

“When we pursue the invariant end of Wisdom, we seek not only to solve problems within a frame but also to find the best problems to solve in pursuing Wisdom. We may call the rules of reason for finding the best problems to solve in pursuing Wisdom *rules of Beauty beyond logic*. When we pursue the invariant end of Wisdom, the rules of reason include not only the rules of logic but also the rules of Beauty beyond logic.”

was deleted.

Chapter 8, Reason in Modern Western Thought, entire section

“Reason in Modern Western Thought

[This is the bud of a section that relates boundless pragmatism to modern Western thought.]”

was changed to:

“Temporal, Timeless, and Invariant Reason

[This is the bud of several sections that describe rules for relating useful beliefs.]”

Changes in Version 2011.03.16

Chapter 7, second paragraph

Changed “Pursuing” to “Further, pursuing” in the third sentence.

Chapter 7, The Scope of Reason, last paragraph, first sentence

“When combined with the inexhaustibility of knowledge, the tendency to adapt an ever more expansive and coherent view of the problems we face suggests a natural dynamic in the evolution of culture:”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The Ever-Increasing Pace of Change

We are programmed to pursue the timeless end of living well. Pursuing this timeless end well calls for learning well, which in turn calls for taking an ever more expansive and coherent view of the problems we face. These relations suggest a natural dynamic in the evolution of culture.”

Chapter 7, The Scope of Reason, last paragraph, footnote

“¹⁰ As we have seen throughout this work, learning ever more about what ends we ought to pursue conflicts with temporal views of competing well, which do not allow for learning. Learning ever more about what ends we ought to pursue also conflicts with timeless views of competing well, which allow for learning ever more about means but not about ends. We can see this limitation in timeless social science models, which concern the evolution of cooperation. We can also see this limitation in timeless biological models, which concern how species pursue the timeless end of living well. When used as tools for helping people find problems to solve, both of these types of timeless models tend to blind us to pursuing all boundless factors of pursuing Wisdom. We can avoid being blinded by the models we use to find problems to solve by using invariant models to help us find problems to solve. These models use a concept of rationality that considers symmetry as well as logic.”

was deleted.

Chapter 7, *Prelude to Boyd's Idea of Competing in Time*, heading

Deleted the heading, “*Prelude to Boyd's Idea of Competing in Time.*”

Chapter 7, *Temporal OODA Loop Analysis*, last paragraph, first footnote

“¹⁴ As we saw in the EOQ/RTS example, the inexhaustibility of knowledge effectively turns temporal problems that may involve learning into timeless problems. Hence, the only problems we ought to consider to be temporal problems are those in which we are certain that learning plays no significant role.”

was changed to:

“¹⁴ As we saw in the EOQ/RTS example, the only problems we ought to consider to be temporal problems are those in which we are certain that learning plays no significant role.”

Chapter 7, *Temporal OODA Loop Analysis*, last paragraph, last footnote

Added the sentence:

“This slide presentation is available in the Boyd archive of Project White Horse <<http://www.projectwhitehorse.com/boydsarchive.htm>> (15 March 2011).”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2011.03.22

Chapter 1, title

Changed “*Confucius*” to “*Kong Qiu*” in the introductory quote.

Chapter 1, title footnote

Added the sentence:

“*Kong Qiu is commonly known by various courtesy names, which include Confucius (Master Teacher Kong).*”

Chapter 7, title

Changed “*Sunzi*” to “*Sun Wu*” in the introductory quote.

Chapter 7, title footnote

Added the sentence:

“*Sun Wu is commonly known by various courtesy names, which include Sunzi (Master Sun).*”

Chapter 7, The Ever-Increasing Pace of Change, entire section

“**The Ever-Increasing Pace of Change**”

We are programmed to pursue the timeless end of living well. Pursuing this timeless end well calls for learning well, which in turn calls for taking an ever more expansive and coherent view of the problems we face. These relations suggest a natural dynamic in the evolution of culture:

People who take a more expansive and coherent view of the problems they face tend to make better use of knowledge of how to live well than do their competitors. This affects their competitors in two ways. First, it provides competitors with an example of how to live better in the current environment. Second, it changes the environment in a way that is relatively better for people who take a more expansive and coherent view than those who take a less expansive and coherent view. In particular, it increases the pace of change. This shortens the time people have to adapt to change, which in turn increases the value of knowledge related to adapting to change. This knowledge includes knowledge of what people need in order to adapt well to a wide variety of possible changes. People acquire this knowledge by taking a more expansive and coherent view of the problems they face.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

This natural dynamic calls for us to learn ever more about what ends we ought to pursue, which in turn calls for us to use a concept of rationality that considers not only logic but also the symmetry of pursuing Wisdom.”

was changed to:

“Competing well in the information age calls for replacing non-knowledge resources, including time, with knowledge resources. Replacing time with knowledge increases the pace of change. Adapting to an ever-increasing pace of change calls for taking an ever more expansive and coherent view of the world. People who understand this natural dynamic can force their competitors to take an ever more expansive and coherent view of the world by deciding well ever more quickly.”

Changes in Version 2011.03.31

Acknowledgements, second paragraph

Changed “**exposed** me to” to “**introduced** me to **the problems of language through**” in the third sentence.

Acknowledgements, second to last paragraph

“Students of Friedrich Hayek will recognize the homage I paid him in the dedication. I owe more to this self-proclaimed member of the party of life than to any other political economist. “We shall not grow wiser before we learn that much that we have done was very foolish.””

was deleted.

Preface, fourteenth paragraph

Changed “**description**” to “**explanation**” in the last sentence.

Preface, second to last paragraph

Changed “**final**” to “**last**” and “**nineteenth-century German idealism, twentieth-century analytical philosophy**” to “**dialectical philosophy, analytical philosophy**” in the first sentence.

Chapter 1, *The EOQ/RTS Example*, last paragraph, footnote

Changed “**the** appendix” to “**Appendix A**” in the last sentence.

Chapter 1, *Primary Factors of Pursuing Wisdom*, entire section

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Primary Factors of Pursuing Wisdom

Pursuing Wisdom calls for us to refine our beliefs about pursuing Wisdom. When we are completely ignorant about the world, including ourselves, it is as reasonable for us to be completely open-minded about what values we ought to use to guide our decisions. As we learn ever more about the world, it is reasonable for us to become ever more discriminating about what values we use to guide our decisions. When we learn how foolish it is to ignore what we may learn by doing, it is reasonable for us to weed out values based on temporal ends. When we learn how pursuing any timeless end well calls for us to pursue Wisdom, which in turn calls for us to pursue all of the boundless factors of pursuing Wisdom, it is reasonable for us to weed out values that are not boundless factors of pursuing Wisdom.

“Some boundless factors of pursuing Wisdom are subordinate to others. For example, the timeless end of competing well (Winning) is subordinate to the timeless end of living and working together well (Justice). Competing well is a means of discovering which belief or set of beliefs best helps us pursue Wisdom. Living and working together well includes working together to discover which beliefs best help us pursue Wisdom. Similarly, the timeless end of contemplating well (Beauty) and the timeless end of reasoning well (Reason) are subordinate to the timeless end of believing well (the Truth). Contemplating well and reasoning well are parts of refining our beliefs about pursuing Wisdom.

“We can imagine a set of boundless factors of pursuing Wisdom that are subordinate only to Wisdom. We may call these *primary factors of pursuing Wisdom*. Members of this set include the Good, the Truth, and Justice. To include Wholeness in this set is to claim that Wholeness is not subordinate to the Good. This belief currently is, and will likely forever remain, a matter of faith, a matter of belief beyond reason.”

was changed to:

“Beauty as a Guide to Deciding Well

From the view of pursuing Wisdom using the multiple-frame model of pursuing Wisdom, pursuing the Truth about Wisdom calls for us to pursue all of the invariant factors of deciding well. This is a benefit, not a burden. It provides us with a more certain way of testing problems before we address them. If a problem is consistent with all of our beliefs about the invariant factors of deciding well, then it rings true. We have found a beautiful problem to solve.

“The most obvious benefit of this multiple-frame model for deciding well is that it allows us to use more of what we know about the world than any single-frame model of the world does. This is true whether we use it to deliberate, to form and judge decision-rules, or to form and judge habits. A less obvious benefit is that it provides us with a robust means of producing new knowledge through failure. In this, it is like Toyota production system and Karl Popper’s falsification approach to science. However, unlike these other learning-by-doing systems, it is generally useful. In this, it is like mathematics, logic, and other general means for reasoning well that we discover rather

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

than invent. As we shall see, its form of reasoning is the invariant alternative to the timeless reasoning of dialectics.”

Chapter 2, *Tools for Pursuing Wisdom*, title

Changed “*Wisdom*” to “*the Good*.”

Chapter 3, *Zero Public Entropy*, first paragraph, last footnote, seventh sentence

“This is consistent with the self-similar nature of the process that creates these networks, with the power law distribution of income, and with the fractal distribution of commodity price changes over time.”

was deleted.

Chapter 3, *Zero Public Entropy*, last paragraph, last sentence

“We may call the problems whose solutions fall within the bounds of our chosen problem *normal problems* and those that surpass the bounds of our chosen problem *revolutionary problems*.”

was changed to:

“We may call the problems whose solutions fall within the bounds of our chosen **timeless** problem **as we currently understand it** *normal problems* and those that surpass the bounds of our chosen **timeless** problem **as we currently understand it** *revolutionary problems*.”

Chapter 4, *A Crude Look at the Whole*, second paragraph, footnote

Changed “**the** appendix” to “**A**ppendix **A**” in the last sentence.

Chapter 6, *A Common Timeless End*, first paragraph

“**Materialists and dualists can find a common timeless end in the timeless end of revering life well, which we may call *Wholeness*. From both views, Wholeness is a boundless factor of pursuing Wisdom. Pursuing Wisdom calls for us to pursue Wholeness. In turn, pursuing Wholeness calls for us to pursue Wisdom. From a materialist view, Wholeness is subordinate to the Good. From a dualist view, Wholeness is a primary factor of pursuing Wisdom.**”

was changed to:

“**From the materialist view of pursuing Wisdom using the multiple-frame model of pursuing Wisdom, Wholeness is subordinate to the Good: we become part of something infinitely larger than ourselves in order to live well. From the dualist view of pursuing**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Wisdom using the multiple-frame model of pursuing Wisdom, the Good is subordinate to Wholeness: we live well in order to become part of something infinitely larger than ourselves. Which of these views is better currently is, and will likely forever remain, a matter of faith, a matter of belief beyond reason. From both of these views, Wholeness is a boundless factor of pursuing Wisdom: pursuing Wisdom calls for us to pursue Wholeness and pursuing Wholeness calls for us to pursue Wisdom. It is only when the lack of resources for pursuing Wisdom causes us to break the symmetry of pursuing Wisdom that we must choose between pursuing the Good and pursuing Wholeness. Pursuing Wisdom well makes it ever less likely that we need to make this decision.”

Chapter 7, The Scope of Reason, first paragraph

Inserted the following paragraph:

“Pursuing ends well calls for us to overcome our ignorance of the world. This ignorance takes the form of uncertain predictions and incomplete explanations of causation. Uncertain predictions hinder us from solving problems well. Incomplete explanations hinder us from finding the best problems to solve. Models of the world that we use to predict and explain relate beliefs about the world in ways that are useful in predicting and explaining the world. We may call excellence in relating beliefs *reason*.”

Chapter 7, *The Grandest Possible Strategy*, first paragraph

Changed “make the corner positions immune” to “protect the corner positions” in the first sentence.

Chapter 8, Temporal, Timeless, and Invariant Reason, entire section

“Temporal, Timeless, and Invariant Reason

[This is the bud of several sections that describe rules for relating useful beliefs.]”

was changed to:

“Useful Reasoning

Again, pursuing ends well calls for us to overcome our ignorance of the world. This ignorance takes the form of uncertain predictions and incomplete explanations of causation. Uncertain predictions hinder us from solving problems well. Incomplete explanations hinder us from finding the best problems to solve. Models of the world that we use to predict and explain relate beliefs about the world in ways that are useful in predicting and explaining the world. We may call excellence in relating beliefs *reason*. We may also call and the rules we use to relate beliefs well the *rules of reason*.

“Excellence in relating beliefs depends on the type of end we choose to pursue. When we pursue temporal ends, we seek to find the best solution to a given problem that is bounded in time. Excellence in relating beliefs concerns reason within the frame that we

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

use to describe this temporal problem. We may call the set of rules that we use to relate these beliefs the *rules of logic*.

“When we pursue timeless ends, we seek not only to seek to solve given temporal problems, but also to find problems to solve. Excellence in relating beliefs concerns not only relating beliefs within the frames that we use to solve temporal problems, but also in relating beliefs within the frames that we use to find problems to solve. We may call the set of rules that we use to relate beliefs within the frames that we use to find problems to solve in pursuing timeless ends the *rules of dialectics* after the dialectic form of discourse that Socrates used to explain what timeless ends and the means to timeless ends are not.

“Excellence in solving temporal problems calls for models of the world that are completely unambiguous. In contrast, excellence in finding problems to solve in pursuing timeless ends calls for models that are ambiguous with respect to the timeless end and the means of pursuing the timeless end. If these two concepts were not ambiguous, there would be no possibility of finding better means for finding problems to solve. The least ambiguous means of defining these two concepts is to define each in terms of the other.

“Unlike logic, dialectics reminds us of our fallibility. Given our incomplete knowledge of how to decide well in pursuing timeless ends, we make mistakes. In terms of this work, we embed mistakes into our networks of knowledge-in-use. In terms of nineteenth-century German idealism, the internal contradictions of the models we use to guide our actions build up to a crisis that leads us to change our beliefs. Knowledge of our fallibility in pursuing timeless ends encourages us to examine the tools we use to guide our actions. However, when we combine this knowledge with the belief that there are experts who know more than we do about how we ought to live, we tend to give too much power to experts. In contemplating our fallibility, we ought to follow the personal example of Socrates, not the politics of Plato.

“The rules of dialectics help us find problems to solve in pursuing timeless ends. As we saw in the first chapter, finding the best problem to solve in pursuing a timeless end calls for us to choose a frame, which in turn calls for us to choose a frame, which in turn calls for us to choose a frame, and so on to infinity. We can address this infinitely large problem well by pursuing Wisdom using the multiple-frame model of pursuing Wisdom.

“When we pursue Wisdom using the multiple-frame model of pursuing Wisdom, we seek problems that ring true with the pursuit of all boundless factors of pursuing Wisdom. These boundless factors are timeless ends. Hence, the set of rules for pursuing Wisdom contains not only rules that maintain ambiguity in the form of tautological definitions of ends and means, but also rules for reducing ignorance within this ambiguity through experimentation, through learning-by-doing. We may call the rules for pursuing Wisdom using the multiple-frame model of pursuing Wisdom the *rules of Reason*.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Natural Reasoning

The multiple-frame model of pursuing Wisdom is something that we discover, not something we invent. It emerges from the combination of the inexhaustibility of knowledge and the internal drive for all living things to seek to survive and thrive. In seeking to make the best use of knowledge, living beings learn to cooperate with one another.

“From the view of modern biology, living beings cooperate well in order to compete well. In other words, pursuing the timeless end of cooperating well is subordinate to pursuing the timeless end of competing well. From this view, people who seek to cooperate before they seek to compete, to look first for win-win solutions to resource problems before they seek to compete over resources, are an anomaly.

“In contrast, from the view of the multiple-frame model of pursuing Wisdom, living beings compete well in order to cooperate well, in order to make the best use of knowledge resources in living well. In other words, pursuing the timeless end of competing well is superior to pursuing the timeless end of cooperating well. Only when living beings lack the means to cooperate do they compete. Living beings that seek to compete before they seek to cooperate are the special case of living beings that have not yet developed the means to pursue Wisdom using the multiple-frame model of pursuing Wisdom. Given geological periods of time, even the lowest form of life may evolve into a form capable of understanding the multiple-frame model of pursuing Wisdom.

“Which of these two views of the relation between cooperating well and competing well is the better view for helping us find problems to solve, hence for explaining the world? In theory, the multiple-frame model is more complete, hence better than the biological model at helping us find problems to solve. In practice, the multiple-frame model, which has us seek win-win solutions before choosing to compete, is also better than the biological model at helping us find problems to solve.

“People who seek empirical evidence supporting one or the other of these theories would be wise to study the inverse power law distributions of the products of economic activity. These include the distributions of wealth and income studied by Vilfredo Pareto and the distribution of changes in commodity prices studied by Benoit Mandelbrot. Such distributions are the result of some self-similar process or processes. From the view of modern biology, it is not clear what this process or these processes might be. From the view of the multiple-frame model of pursuing Wisdom, it is clear that this process is pursuing Wisdom.”

“³ At the beginning of the twentieth century, modern analytical philosophers sought to reduce the whole of human knowledge to a logically coherent and complete frame. This misguided effort created a backlash against not only logic, but also reason. For more on this, see Appendix B.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2011.04.15

Preface, sixth and seventh paragraphs

“This essential process of pursuing the timeless end of deciding well calls for us to find and solve problems well. Models that help us explain sensations of the world help us find problems to solve. Models that help us predict sensations of the world help us solve given problems.

“To improve the quality of the models we use to predict and explain our sensations of the world, we need means of judging these models. The pragmatic means of judging models is to judge them by their usefulness. We use models that help us explain sensations in order to find problems to solve. We ought to judge these models by how well they help us find problems to solve. We can do so by judging how well these models ring true with what we currently know about pursuing the timeless end of deciding well. This lies beyond the bounds of modern science. We use models that help us predict sensations to solve given problems. We ought to judge these models by how well they help us predict sensations. This lies within the bounds of modern science.”

were deleted.

Preface, new sixth paragraph

Changed “the pursuit of the timeless end of deciding well” to “this intertwined” in the first sentence.

Added the last sentence:

“The form of reasoning that underlies this intertwined pursuit is neither dialectical nor logical, but rather a synthesis of dialectical and logical reasoning.”

Preface, tenth paragraph

Changed “alternatives” to “complements” in the first sentence.

Chapter 1, *Beauty as a Guide to Deciding Well*, last paragraph

Deleted “and Karl Popper’s falsification approach to science” from the fourth sentence.

Chapter 2, *Invariant Tools for Living Well*, second paragraph

Changed “alternatives” to “complements” in the second sentence.

Chapter 3, *The Elephant in the Room*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “pursuing Wisdom” to “pursuing Wisdom **using the multiple-frame model of pursuing Wisdom**” in the first sentence.

Chapter 7, The Scope of Strategy, second paragraph

Changed “**of the kinetic phase** of” to “of” in the first sentence.

Chapter 7, The Scope of Strategy, third paragraph

Changed “**reduce close-in aerial combat** to energy relations” to “**consider aircraft performance in terms of** energy relations” in the third sentence.

Chapter 7, The Scope of Strategy, fourth paragraph

Changed “**most close-in aerial combat situations**” to “**terms of overall aircraft performance**” in the second sentence.

Chapter 7, The Scope of Strategy, last paragraph

Changed “Riccioni,” to “Riccioni, **Chuck Myers, Tom Christie,**” in the second sentence.

Chapter 7, *Temporal OODA Loop Analysis*, first paragraph

Changed “**officially** retired” to “retired” in the first sentence.

Chapter 7, *Temporal OODA Loop Analysis*, third paragraph

“We can use Boyd’s OODA loop model to solve temporal problems.¹⁴ One such problem is the problem of predicting the **relative** performance of fighter planes in **close-in** aerial combat. **Although we can use E-M theory to do this,** there are cases in which E-M theory fails to predict well. The case that most concerned Boyd was the discrepancy between the actual and theoretical results of combat between F-86 pilots and MiG-16 pilots **during the kinetic phase of the Korean War**. According to E-M theory, F-86 pilots should not have been as successful against MiG-16 pilots as they were. **The stock answer for this theoretical anomaly was that F-86 pilots were better trained and had more experience than MiG-15 pilots. While this was true in combat against most North Korean and Chinese pilots, it was not true against most Soviet pilots.** Boyd used his OODA loop model to look deeper. He concluded that F-86 pilots were able to overcome the relative deficiencies in their airplanes **that E-M theory exposed with g-suits, a bubble canopy for better visibility, and a hydraulic control system that was both more responsive and less physically taxing. These factors** allowed F-86 pilots to observe, orient, decide, and act more quickly than their opponents. Unlike American P-38 pilots fighting against Japanese pilots in slower, but more maneuverable fighter planes a decade earlier, F-86 pilots fighting MiG-15 pilots were not limited to a single tactic. This made them appear more unpredictable and threatening to their opponents. It also

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

made it possible to “get inside the decision cycles” of their opponents, where they could remain relatively safe until their opponents made an exploitable mistake.^{15”}

was changed to:

“We can use Boyd’s OODA loop model to solve temporal problems.¹⁴ One such problem is the problem of predicting the performance of fighter planes in close aerial combat. There are cases in which E-M theory fails to predict well. The case that most concerned Boyd was the discrepancy between the actual and theoretical results of combat between F-86 pilots and MiG-15 pilots. According to **analysis based solely on** E-M theory, F-86 pilots should not have been as successful against MiG-15 pilots as they were. Boyd used his OODA loop model to look deeper. He concluded that F-86 pilots were able to overcome the relative deficiencies in their airplanes **using tools that** allowed **them** to observe, orient, decide, and act more quickly than their opponents. **These tools included bubble canopies for better visibility, g-suits for greater resistance to acceleration, and hydraulic controls for less physically exhausting maneuvering.** Unlike American P-38 pilots fighting against Japanese pilots in slower, but more maneuverable fighter planes a decade earlier, F-86 pilots fighting MiG-15 pilots were not limited to a single tactic. This made them appear more unpredictable and threatening to their opponents. It also made it possible to “get inside the decision cycles” of their opponents, where they could remain relatively safe until their opponents made an exploitable mistake.^{15”}

Chapter 8, Useful Reasoning, first paragraph

Changed “we use” to “**that** we use” in the last sentence.

Chapter 8, Useful Reasoning, fifth paragraph, third sentence

“**In terms of nineteenth-century German idealism, the internal contradictions of the models we use to guide our actions build up to a crisis that leads us to change our beliefs.**”

was reduced to a footnote.

Changes in Version 2011.04.23

Chapter 1, Temporal versus Timeless Values, last paragraph, last sentence

“However, from a view that does allow learning by doing, we have learned that pursuing Wisdom ever better calls for us to pursue the Truth ever better.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“However, from a view that does allow learning by doing, we have learned that pursuing Wisdom ever better calls for us to pursue the Truth ever better, and that pursuing the Truth ever better calls for us to pursue Wisdom ever better. In short, there exists a virtuous circle between pursuing Wisdom and pursuing the Truth.”

Chapter 1, *A Pragmatic Model of Pursuing Wisdom*, first paragraph

Changed “this insight” to “this insight into the relation between pursuing the Truth and pursuing Wisdom” in the first sentence.

Changes in Version 2011.04.25

Preface, seventh paragraph

Changed “create” to “invent” in the last sentence.

Chapter 1, *More Complete Models of Pursuing Wisdom*, third paragraph, footnote

Deleted “(theory of knowledge)” from the first sentence.

Deleted “(pursuing the Good)” and “(pursuing all of the boundless factors of deciding well)” from the third sentence.

Chapter 1, *More Complete Models of Pursuing Wisdom*, second paragraph

Changed “for deciding well” to “of pursuing Wisdom” in the first sentence.

Chapter 1, *More Complete Models of Pursuing Wisdom*, last paragraph, last sentence

“Adding the frame of pursuing Wholeness to our multiple-frame model of pursuing Wisdom gives us another way to judge problems to solve in pursuing Wisdom.”

was replaced by the following paragraph:

“With each new boundless factor we add to our multiple-frame model of pursuing Wisdom, we gain greater understanding of what it is to pursue Wisdom. With this greater understanding, we can more readily judge whether the problems we are considering are consistent with pursuing Wisdom. If a problem is consistent with all of our beliefs about pursuing the boundless factors of deciding well, then it rings true. We have found a beautiful problem to solve.

“The most obvious benefit of this multiple-frame model of pursuing Wisdom is that it allows us to use more of what we know about the world than any single-frame model of the world does. This is true whether we use it to deliberate, to form and judge decision-

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

rules, or to form and judge habits. A less obvious benefit is that it provides us with a robust means of creating knowledge through failure. In this, it is like Toyota production system. However, unlike the Toyota production system, it is something that is universally useful.”

Chapter 1, Beauty as a Guide to Deciding Well, entire subsection

“*Beauty as a Guide to Deciding Well*

From the view of pursuing Wisdom using the multiple-frame model of pursuing Wisdom, pursuing the Truth about Wisdom calls for us to pursue all of the invariant factors of deciding well. This is a benefit, not a burden. It provides us with a more certain way of testing problems before we address them. If a problem is consistent with all of our beliefs about the invariant factors of deciding well, then it rings true. We have found a beautiful problem to solve.

“The most obvious benefit of this multiple-frame model of pursuing Wisdom is that it allows us to use more of what we know about the world than any single-frame model of the world does. This is true whether we use it to deliberate, to form and judge decision-rules, or to form and judge habits. A less obvious benefit is that it provides us with a robust means of producing new knowledge through failure. In this, it is like Toyota production system. However, unlike these other learning-by-doing systems, it is more generally useful. In this, it is like mathematics, logic, and other means for reasoning well that we discover rather than invent. As we shall see, its form of reasoning is the invariant alternative to the timeless reasoning of dialectics.”

were deleted.

Chapter 2, A Strategy for Learning Well, first paragraph

Changed “pursue Wisdom” to “pursue Wisdom using the multiple-frame model of pursuing Wisdom” in the last sentence.

Chapter 5, *Promote Savings for Welfare*, last paragraph, last footnote, end

Added the sentences:

“From the invariant view of deciding well, the natural distribution of income of people deciding well is likely to follow an inverse power law. If so, policies for redistributing income will hinder deciding well. Far better are policies for ensuring that people have what they need to decide well.”

Chapter 5, Liberalism, last paragraph

Changed “learn what they now improperly call humanity by pursuing Wisdom” to “best learn what they improperly call humanity by pursuing Wisdom using the multiple-frame model of pursuing Wisdom” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 6, *Schweitzer's Universal Spiritual Need*, fourth paragraph

Changed “involve” to “have” in the first sentence.

Chapter 6, *Worldly Benefits of Detachment*, last paragraph

Changed “The classic example” to “A classic example” in the second sentence.

Chapter 6, *Experiencing the Mysterious*, second paragraph

Deleted the phrase “from the temporal view of modern economics,” from the last sentence.

Chapter 6, *Experiencing the Mysterious*, last paragraph

Deleted the phrase “during life” from the third sentence.

Chapter 6, *Einstein's Twin Warnings*, last paragraph

Changed “in invariant terms” to “in terms of the multiple-frame model of pursuing Wisdom” in the second sentence.

Italicized the third sentence: “*His house has room for good Samaritans.*”

Chapter 6, *A Common Timeless End*, first paragraph

Changed “better” to “true” in the third sentence.

Chapter 6, *A Common Timeless End*, first paragraph, last two sentences

“It is only when the lack of resources for pursuing Wisdom causes us to break the symmetry of pursuing Wisdom that we must choose between pursuing the Good and pursuing Wholeness. Pursuing Wisdom well makes it ever less likely that we need to make this decision.”

were changed to:

“The lack of resources for pursuing Wisdom may cause us to choose between pursuing the Good and pursuing Wholeness. Pursuing Wisdom well makes it ever less likely that we will need to make this decision.”

Chapter 8, *Natural Reasoning*, fifth paragraph

Changed “inverse power law distributions” to “power law distributions” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Natural Reasoning, third paragraph

Changed “**geological**” to “**cosmological**” in the last sentence.

Appendix, *Inducing Knowledge*, title

Changed title to “*Inducing **the Creation of Knowledge**.*”

Appendix, *Inducing the Creation of Knowledge*, fourth paragraph

Changed “inducing knowledge” to “inducing **the creation of** knowledge” in the first sentence.

Changes in Version 2011.04.30

Chapter 1, *The Need for Timeless Frames*, first bullet point

Changed “**expensive**” to “**costly**” in the first sentence.

Chapter 1, *The Need for Timeless Frames*, second bullet point

Changed “**expensive**” to “**costly**” in the first sentence.

Chapter 1, *The Need for Timeless Frames*, third bullet point

Changed “**Again**, once we have learned how to make products” to “**O**nce we have learned how to make **functionally identical** products” in the last sentence.

Chapter 1, *Timeless versus Invariant Values*, fifth paragraph

Changed “**domestic** cats” to “**house** cats” in the seventh sentence.

Chapter 1, *A Pragmatic Model of Pursuing Wisdom*, last paragraph

“**This two-frame model helps us find problems to solve in pursuing Wisdom by weeding out problems that are not consistent with pursuing the Truth. However, this usefulness comes at the cost of consistency with the rules of logic. For example, the statement that we pursue the Truth is true from within the frame of pursuing the Truth and from within the multiple-frame model as a whole, but not from within the frame of pursuing Wisdom. Similarly, the statement that we pursue Wisdom is true from within the frame of pursuing Wisdom and from within the model as a whole, but not from within the frame of pursuing the Truth.¹²**”

“¹² **For more on this, read the chapter on reasoning well.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“We can use this multiple-frame model to weed out problems that are not consistent with both pursuing Wisdom and pursuing the Truth. Viewing potential problems to solve from more than one frame gives us a better chance of avoiding the problems of abstraction that arise from viewing the world from a single frame.”

Chapter 1, *More Complete Models of Pursuing Wisdom*, title

Changed “*More*” to “*Ever More*” in the title.

Chapter 1, *Ever More Complete Models of Pursuing Wisdom*, last paragraph

Changed “it is **something that is**” to “it is” in the last sentence.

Chapter 6, *Worldly Benefits of Detachment*, fourth paragraph

Changed “**In religious terms, she**” to “**She**” in the last sentence.

Chapter 6, *Worldly Benefits of Detachment*, last paragraph

“**Competing** well in the information age calls for replacing non-knowledge resources, **including time**, with knowledge resources. Replacing time with knowledge increases the pace of change. Adapting to an ever-increasing pace of change calls for taking an ever more expansive and coherent view of the world. Adapting to an ever-increasing pace of change calls for taking an ever more expansive and coherent view of the world. People who understand this natural dynamic can force their competitors to take an ever more expansive and coherent view of the world by deciding well ever more quickly.”

was moved to the next section and changed to:

“**Deciding** well calls for replacing non-knowledge resources with knowledge resources. **These non-knowledge resources include time**. Replacing time with knowledge increases the pace of change. Adapting to an ever-increasing pace of change **well** calls for taking an ever more expansive and coherent view of the world. Adapting to an ever-increasing pace of change calls for taking an ever more expansive and coherent view of the world. People who understand this natural dynamic can force their competitors to take an ever more expansive and coherent view of the world by deciding well ever more quickly.”

Chapter 6, *A Common Timeless End*, first paragraph

Deleted “, **and will likely forever remain,**” from the third sentence.

Changed “**decision**” to “**choice**” in the last sentence.

Chapter 7, *The Scope of Reason*, eleventh paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “symmetry” to “**the symmetry of pursuing Wisdom using the multiple-frame model of pursuing Wisdom**” in the last sentence.

Chapter 8, Useful Reasoning, last paragraph

“When we pursue Wisdom using the multiple-frame model of pursuing Wisdom, we seek problems that ring true with the pursuit of all boundless factors of pursuing Wisdom. **These boundless factors** are timeless ends. Hence, the set of rules for pursuing Wisdom contains **not only rules that maintain ambiguity in the form of tautological definitions of ends and means, but also rules for reducing ignorance within this ambiguity through experimentation, through learning-by-doing.** We may call **the rules for pursuing Wisdom using the multiple-frame model of pursuing Wisdom** the *rules of Reason*.”

to:

“When we pursue Wisdom using the multiple-frame model of pursuing Wisdom, we seek problems that ring true with the pursuit of all boundless factors of pursuing Wisdom, **which** are timeless ends. **We also seek to solve these problems using models that help us predict what will happen.** Hence, the set of rules for pursuing Wisdom using the multiple-frame model of pursuing Wisdom contains **both the rules of dialectics and the rules of logic.** We may call **this set of rules** the *rules of Reason*.⁴”

⁴ **Students of Western thought may better understand the distinction between logic, dialectics, and Reason by studying Ludwig Wittgenstein’s conversion from a picture theory of language, which he based on an explicitly temporal view of the world, to an instrumental theory of language, which he based on everyday thinking. As a result of this conversion, Wittgenstein came to believe that the goal of understanding language was to show the fly the way out of the fly-bottle. In contrast to this biological goal, the public goal of understanding language is to help people pursue Wisdom, hence the Good, the Truth, Justice, Beauty, and all of the other boundless factors of pursuing Wisdom. These students may find the decision-oriented interpretation of quantum mechanics useful in thinking through the problems of existence and consciousness, e.g., whether a carp that glows in the dark can be said to exist if it only exists in the mind of genetic scientist who knows how to make fish that glow in the dark. They may discover that quantum mechanics makes more sense than modern common sense.**”

Chapter 8, Natural Reasoning, third paragraph

Changed “**Given cosmological periods of time, even**” to “**Even**” in the last sentence.

Changes in Version 2011.05.02

Acknowledgments, fifth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “computer language” to “language” in the last sentence.

Preface, first four paragraphs

“*Boundless Pragmatism* is the book that I wish I had read thirty-two years ago for George Leland Bach’s course, “Business, Government, and the Changing Environment.” Dean Bach intended his pioneering course in ethical decision-making to be the high point of our Stanford MBA experience. From the first day until the last, he relentlessly questioned our solutions to case studies without disclosing his values. It was only after we finished the last case that he told us three rules that he used to test his decisions. These were (1) the golden rule (*Do unto others as you would have them do unto you*); (2) the television rule (*Assume that your actions will become widely known*); and (3) the long-run rule (*Don’t eat your seed corn*).

“I wanted something more coherent and complete than these three decision rules. I had learned many analytical tools in business school. I knew that these tools could lead me astray. I wanted something to help me know when I was in danger of being led astray. I have since learned that I ought to have wanted a *science of deciding well*, by which I mean a method of weeding out members of the set of descriptions of the world that we use to guide our actions.

“Some modern thinkers will claim that I confuse seeking the truth with seeking wisdom. In making this claim, they confuse the temporal problem of seeking the truth and the temporal problem of seeking wisdom with the timeless problem of seeking both the truth and wisdom. In doing so, they confirm Albert Einstein’s observation, “Perfection of means and confusion of ends seem to characterize our age.” This confusion arises from a deeply-ingrained cultural bias toward pursuing what we currently want rather than pursuing what we need in order to decide well. This temporal bias tends to blind us to making the best use of what we currently know.

“To help us overcome this temporal bias, I propose a simple model of deciding well: Deciding well is a matter of repeatedly applying a sequence of decision-making steps such that the results of one cycle becomes the basis of the next cycle. The essential steps in this recursive process are (1) choosing a temporal problem to solve; (2) attempting to solve this problem well; and (3) learning from the experience. Deciding well, so conceived, is an economic process, which is to say that it is a public process subject to constraints. These constraints concern not only solving temporal problems, but also learning how to solve temporal problems ever better.”

were changed to:

“In the fall quarter of 1978, I took George Leland Bach’s MBA course in ethics. From the first day until the last, Dean Bach relentlessly questioned our solutions to cases without disclosing his values. It was only after we finished the last case that he told us three rules that he used to judge his solutions. These were (1) the golden rule (*Do unto others as you would have them do unto you*); (2) the television rule (*Assume that your*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

actions will become widely known); and (3) the long-run rule (*Don't eat your seed corn*). I wanted something more coherent and complete than these three rules. I wanted something to help me know **when analytical tools were leading me** astray. I have since learned that I ought to have wanted a *science of deciding well*, by which I mean a method of weeding out descriptions of the world that we use to guide our actions.

“Some modern thinkers will claim that I confuse seeking the truth with seeking wisdom. In **claiming** this, they confuse the temporal with the timeless. In doing so, they **fail** to make the best use of what **they** currently know. To **correct** this **mistake**, I propose a timeless model of deciding well:

Deciding well is a matter of repeatedly applying a sequence of decision-making steps such that the results of one cycle become the basis of the next cycle. The basic steps in this recursive process are (1) choosing a temporal problem to solve; (2) attempting to solve this problem well; and (3) learning from the experience.

Deciding well, so conceived, is an economic process, a process subject to constraints. These constraints concern not only solving temporal problems, but also learning how to solve temporal problems ever better.”

Preface, new third paragraph

Changed “**concept**” to “**model**” in the first sentence.

Changed “**an explanation**” to “**a formal explanation**” in the fourth sentence.

Preface, new third paragraph

Changed “**universal, boundless factor**” to “**boundless factor**” in the second sentence.

Preface, new fourth through sixth paragraphs

“Students of Western thought may find in this **intertwined** pursuit a synthesis of the Platonic pursuit of **knowledge of** ideal forms and the Aristotelian pursuit of **knowledge of** natural forms. Like the Platonic pursuit, **the pursuit of the timeless end of deciding well** involves pursuing knowledge of ideal forms. Unlike the Platonic pursuit, **this pursuit** is endless. We **can** never see the whole truth by the light of all that is good. Like the Aristotelian pursuit, **the pursuit of the timeless end of deciding well** involves replicable patterns of reasoning. Unlike the Aristotelian pursuit, **this pursuit** involves not only rules that bind beliefs together into coherent models of the world, but also rules for binding these models together into a coherent whole. The source of the coherence for binding these models together is the symmetry of **pursuing the timeless end of deciding well**. **The form of reasoning that underlies this intertwined pursuit is neither dialectical nor logical, but rather a synthesis of dialectical and logical reasoning.**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the timeless view of deciding well put forth in this work, the essential pursuit of the timeless end of deciding well has translational symmetry with respect to reference frames defined by beliefs and circumstances. When we expand the scope of the problems we face to the limits of imagination, our problems become part of the problem that contains all other problems. The solution to this universal problem, which is the essential process of pursuing the timeless end of deciding well, is the same for all of us. In mathematical terms, the essential pursuit of the timeless end of deciding well is *invariant* with respect to reference frames defined by beliefs and circumstances. As such, it is something that we discover rather than invent.

“In this little book, I have tried to provide people with the **intellectual** tools they need to discover and use **the essential** process of **pursuing the timeless end of** deciding well. In the first chapter, I explain why making the most of what we know in **pursuing the timeless end of** living well calls for us to **pursue the timeless end of** deciding well. In the remaining chapters, I describe timeless conceptual frameworks useful in **pursuing the timeless end of** deciding well.”

were changed to:

“Students of Western thought may find in this **timeless** pursuit a synthesis of the Platonic pursuit of ideal forms and the Aristotelian pursuit of natural forms. Like the Platonic pursuit, **this** pursuit involves pursuing knowledge of ideal forms. Unlike the Platonic pursuit, it is endless. We **shall** never see the whole truth by the light of all that is good. Like the Aristotelian pursuit, **this** pursuit involves replicable patterns of reasoning. Unlike the Aristotelian pursuit, **it** involves not only rules that bind beliefs together into coherent models of the world, but also rules for binding these models together into a coherent whole. The source of the coherence for binding these models together is the symmetry of deciding well.

“In this little book, I have tried to provide people with the tools they need to discover and use **this basic** process of deciding well. In the first chapter, I explain why making the most of what we know calls for us to **decide** well. In the remaining chapters, I describe timeless conceptual frameworks useful in deciding well.”

Preface, new sixth paragraph

Changed “**invariant** complements” to “**timeless** complements” in the first sentence.

Changed “**information age** equivalent of **Adam Smith’s**” to “**timeless** equivalent of **the modern**” in the last sentence.

Preface, new seventh paragraph

Changed “**pursuing the timeless end of** deciding well” to “deciding well” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, new eighth and ninth paragraphs

“In “Believing Well,” I describe the process of refining everyday thinking. This includes invariant alternatives to the modern concepts of the natural sciences, the social sciences, and the humanities. Next I describe the process of refining the process of deciding well. This includes explanations of why the modern economic concept of equilibrium leads us to underestimate the probability of great turbulence and why seeking to extend good times by lowering the quality of decisions is as shortsighted as seeking to prevent all forest fires. I end the chapter with some brief reminders about pursuing the timeless end of believing well.

“In “Governing Ourselves Well,” I argue that it is useful to think of governments as timeless experiments that test the stories that we use to assign rights and responsibilities. I go on to argue that the best such story is the one that calls for us to pursue the timeless end of living well ever more wisely. I end the chapter with a brief explanation of the differences between invariant, modern American, and classical liberalism.”

were changed to:

“In “Believing Well,” I explain how we can refine everyday thinking. I then explain how we can refine deciding well. In doing so, I explain why modern economics leads us to underestimate the probability of great turbulence and why seeking to extend good times by lowering the quality of decisions is as shortsighted as seeking to prevent all forest fires.

“In “Governing Ourselves Well,” I argue that it is useful to think of governments as timeless experiments that test the stories that we use to assign rights and responsibilities. I go on to argue that the best such story is the one that calls for us to decide well. I end by describing three distinct types of liberalism.”

Preface, new tenth paragraph

Changed “Einstein’s claims” to “Albert Einstein’s twin claims” in the last sentence.

Preface, new eleventh paragraph

Changed “go on to” to “then” in the last sentence.

Preface, last two paragraphs

“In the last chapter, “Reasoning Well,” I relate boundless pragmatism to dialectical philosophy, analytical philosophy, and fractal geometry.

“My hope in writing such a short book is that people will read it more than once, and that on each reading they will understand ever more of their own experiences in a better way.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“In the last chapter, “Reasoning Well,” I argue that the reasoning that underlies deciding well is neither dialectical nor logical, but rather a synthesis of both.

“My hope in writing such a short book is that people will read it more than once, and that on each reading they will better understand their lives.”

Chapter 1, *A Pragmatic Model of Deciding Well*, first paragraph

Changed “each” to “the” in the fourth sentence.

Chapter 4, *Two Forms of Ignorance*, second paragraph

“At the largest problem-scale level, which we may call *the transcendent level*, there is nothing left to learn, hence no need for either models that help us predict or models that help us explain.”

was changed to:

“At the largest problem-scale level there is nothing left to learn, hence no need for models that help us predict or explain.”

Chapter 6, *The Farther Reaches of our Nature*, last paragraph

Changed “Maslow” to “He” in the last sentence.

Chapter 6, *The Worldly Benefits of Detachment*, first paragraph

Deleted “, which is its ability to promote reverence for life” from the first sentence.

Chapter 6, *Einstein's Twin Warnings*, last paragraph

Changed ““the way, and the truth, and the life” in terms of the multiple-frame model of pursuing Wisdom,” to “Jesus as the way, and the truth, and the life,” in the fifth from the last sentence.

Changes in Version 2011.05.07

Chapter 1, *Temporal versus Invariant Values*, last paragraph

Changed “our original problem pursuing Wisdom” to “our original problem” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *A Pragmatic Model of Pursuing Wisdom*, title

Changed title to: “*Steps for Building Multiple-Frame Models.*”

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph, first sentence

“We can use this insight into the relation between pursuing the Truth and pursuing Wisdom as the basis for a model of pursuing Wisdom.”

was moved to the end of the last paragraph of the preceding section and changed to:

“We can use this insight as the basis for building multiple-frame models of pursuing Wisdom.”

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph

“Building this model calls for repeating three basic steps. The first is discovering a member of the set of factors of pursuing Wisdom that we can never have in excess. The second is building a useful frame for pursuing the boundless factor by defining it and the means to it in terms of one another. The third is recognizing that Wisdom is a boundless factor of this boundless factor of pursuing Wisdom.”

was changed to:

“We can build ever more complete models of pursuing Wisdom by repeating three basic steps. The first step is discovering a member of the set of factors of pursuing Wisdom that we can never have in excess. The second is building a useful frame for pursuing the boundless factor by defining it and the means to it in terms of one another. The third is recognizing that Wisdom is a boundless factor of this boundless factor of pursuing Wisdom. In theory, each cycle through these steps yields a better model of pursuing Wisdom. In practice, these models can be too complete. In terms of modern economics, the marginal costs of using more complete models can outweigh the marginal benefits of using these models. In terms of modern physics, classical mechanics is often good enough.”

Chapter 1, *Ever More Complete Models of Pursuing Wisdom*, title

Changed title to: “*Ever More Complete Multiple-Frame Models.*”

Chapter 1, *Ever More Complete Models of Pursuing Wisdom*, last paragraph

“The most obvious benefit of this multiple-frame model of pursuing Wisdom is that it allows us to use more of what we know about the world than any single-frame model of the world does. This is true whether we use it to deliberate, to form and judge decision-rules, or to form and judge habits. A less obvious benefit is that it provides us with a more robust means of creating knowledge through failure. In this, it is like the Toyota

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

production system. However, unlike the Toyota production system, it is universally useful.”

were changed to:

“The most obvious benefit of this multiple-frame approach is that it allows us to use more of what we know about the world than any single-frame approach does. This is true whether we use it to deliberate, to form and judge decision-rules, or to form and judge habits. A less obvious benefit is that it provides us with a more robust means of creating knowledge through failure.”

Chapter 3, Pursuing the Ring of Truth, all paragraphs

“There is an ancient belief that equates truth with beauty. Nineteenth-century poet John Keats expressed this belief in the closing lines of his poem, “Ode on a Grecian Urn”:

“Beauty is truth, truth beauty, — that is all ye know on earth, and all ye need to know.”¹

Combining this ancient belief with the invariant concepts of pleasure and joy yields an invariant concept of beauty: *beauty is the quality of objects whose contemplation yields not only pleasure but also the joy that comes from improving how well our beliefs fit together into a coherent whole that is useful in pursuing Wisdom.*

“To give us pleasure, an activity must not be too easy or too hard. Too easy an activity bores us; too hard an activity overwhelms us. When the activity is contemplation, the object of contemplation must not be too simple or too hard to contemplate. Contemplating too simple an object bores us; contemplating too hard an object overwhelms us. Between what is boring and what is overwhelming is a level of difficulty that allows us to lose ourselves in contemplation. As we learn more, objects that once were too hard may bring us pleasure; and objects that once brought us pleasure may become boring. Learning about the structure of classical music may turn Beethoven’s symphonies from being overwhelming to being beautiful. It may also turn pop music from being beautiful to being boring.

“To give us joy, an activity must improve our state of being. When the activity is contemplation, the object of contemplation must be just novel enough for us to learn from it. If the object is not novel or too novel we will not learn from it. As we learn more, objects that once brought us joy become mundane and objects that were once too novel become beautiful. Before we learn calculus, Newton’s theory of gravity is too novel to bring us joy. After we learn calculus, it has the potential to bring us joy. With use, it becomes just another tool.

“From the view of the multiple-frame model of pursuing Wisdom, pursuing the Truth calls for us to pursue all of the boundless factors of pursuing Wisdom. This is a benefit, not a burden. It provides us with a more certain way of testing problems before we attempt to solve them. If a problem is consistent with all of our beliefs about the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

boundless factors of pursuing Wisdom, then it rings true. We have found a beautiful problem to solve.”

were changed to:

“Pursuing Wisdom using the multiple-frame model of pursuing Wisdom calls for us to contemplate how well the problems we find ring true with all that we currently know about pursuing Wisdom. If a problem rings true, then we have found a beautiful problem to solve. Accordingly, we define the timeless frame for pursuing Beauty by defining contemplating well and the timeless end of contemplating well in terms of one another. By itself, this timeless frame is useless. However, we can make it useful in pursuing Wisdom by making it part of the multiple-frame model of pursuing Wisdom.

“Consider how we can use this timeless frame and the invariant concepts of pleasure and joy to define a concept of beauty that is useful in pursuing Wisdom. To yield pleasure, an activity must not be too easy or too hard. Too easy an activity bores us; too hard an activity overwhelms us. When the activity is contemplating, the object we contemplate must not be too simple or too hard to contemplate. Contemplating too simple an object bores us; contemplating too hard an object overwhelms us. Between these two extremes is a level of difficulty that allows us to lose ourselves in contemplating. As we learn more, objects that once were too hard may yield pleasure; and objects that once yielded pleasure may become boring. Learning about classical music may turn Beethoven’s symphonies from being overwhelming to being beautiful. Learning may also change simpler music from being beautiful to being boring.

“To yield joy, an activity must improve our state of being. When the activity is contemplating, the object we contemplate must be able to improve our state of being. Within the context of the multiple-frame of pursuing Wisdom, the object we contemplate must be able to improve how well our beliefs fit together into a coherent whole that we find useful in pursuing Wisdom. For us to be able to learn something useful in pursuing Wisdom from it, it must be just novel enough for us to be able to learn from it. If it is too familiar or too novel, we will not be able to learn from it. As we learn more, objects that once were too novel may become just novel enough to yield joy and objects that were just novel enough may become too familiar to yield joy. Before we learn calculus, Newton’s theory of gravity is too novel to yield joy. After we learn calculus, it may yield joy. With use, it becomes just another tool for living well.

“In summary, by putting the timeless frame of pursuing Beauty into the multiple-frame model of pursuing Wisdom, we learn that beauty is the quality of objects whose contemplation yields not only the pleasure that comes from losing ourselves in contemplating, but also the joy that comes from contemplating well. Beauty is the quality of objects whose contemplation yields not only pleasure, but also the joy of becoming wiser.”

Chapter 3, Leaving Behind Modern Explanations, all paragraphs

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Pursuing Wisdom calls for us to choose among a nearly infinite number of nearly infinite paths forward. Thinking deeply about **these paths** calls for us to leave behind modern models for explaining the world. **In doing so, we** become as sailors venturing beyond landfall. **Fortunately, we** can use the **linguistic equivalent** of **transcendental recursive numbers** to help us **navigate these potentially maddening seas**.

“**Transcendental recursive numbers** are transcendental in that we cannot reduce them to algebraic expressions. In this sense, we can never know them completely. They are recursive in that they are the solution of at least one endlessly repeating cycle of steps in which the result of one cycle becomes the basis for the next cycle. The mathematical constant π is a transcendental recursive number. It is transcendental in that we cannot reduce it to an algebraic expression. It is a recursive in that we can theoretically know it by means of at least one endlessly repeating cycle of steps in which the result of one cycle becomes the basis for the next cycle.

“We can imagine a set of transcendental recursive objects. These objects are transcendental in that we cannot reduce them to logical expressions. In this sense, we can never know them completely. They are recursive in that we can theoretically know them by means of at least one endlessly repeating cycle of steps in which the result of one cycle becomes the basis for the next cycle. Wisdom is a transcendental recursive object. Wisdom is transcendental in that we cannot reduce it to logical expressions. It is recursive in that we can theoretically know it by means of at least one endlessly repeating cycle of steps in which the result of one cycle becomes the basis for the next cycle.

“We may think of the processes by which we come to know ever more about recursive numbers or objects as having three elements. The first of these elements is the process itself. In pursuing π , this process is any one of many means of computing π . In pursuing Wisdom, this process is deciding well.

“The second of these elements is the transcendental end of the process. This end is complete knowledge of the recursive number or object. In computing π , the transcendental end is the ratio of the circumference of a Euclidean circle to its diameter. The form of this end is a number. In deciding well, the transcendental end is the knowledge that allows a perfectly wise being to decide perfectly well. The form of this end is the form of knowledge that is most useful to a perfectly wise being in deciding well.

“The third of these elements is the timeless end of the process. The timeless end is that which we seek during the process. In computing π , the timeless end is ever better approximations of π . The form of this end is a number. In deciding well, the timeless end is ever better approximations of Wisdom. The form of this end is a set of incomplete descriptions of the world. These descriptions ought to be as simple as possible, but not simpler; and the set of descriptions ought to be as small as possible, but not smaller.”²

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Pursuing Wisdom calls for us to choose among a nearly infinite number of nearly infinite paths. Thinking deeply about **this problem** calls for us to leave behind modern models for explaining the world. We can use the **concept** of *transcendental recursive objects* to help us **muddle forward ever more wisely**.

“Recursive objects are objects that we know better by means of a repeating cycle of steps in which the result of one cycle becomes the basis for the next cycle. We may think of these recursive processes as having three basic parts. The first is the cycle of steps that we apply repeatedly; the second is the result of each cycle; and the third is the result of the process.

“Consider the problem of dividing a bag of marbles equally among six children. We can solve this simple problem using a simple recursive process. The steps in this process are removing six marbles from the bag; giving each child a marble; and repeating the first two steps until there are less than six marbles in the bag. In this simple example, the result of each cycle is the number of marbles each child has received, and the result of the process is the number of marbles each child will receive.

“Complete knowledge of some recursive objects will always transcend our knowledge of them. The best we can do is to find a recursive process that will yield ever better approximations of these transcendent recursive objects. The mathematical constant π is one such object. We can define π exactly (as the ratio of the circumference to the diameter of a Euclidean circle), but can never know it completely. In mathematical terms, we can never reduce this number to an algebraic expression. Wisdom is another such object. We can define Wisdom exactly (as knowledge that allows a being to decide perfectly), but we can never know it completely. In terms of this work, we can never reduce this object to a logical expression, to any set of logically related beliefs about the world.

“The recursive process for knowing transcendent objects is endless. Hence, we may reasonably call the result of a cycle its *timeless end* and the result of the process its *transcendent end*. In computing π , the timeless and transcendent ends are both numbers. In **pursuing Wisdom**, the timeless end is ever better approximation of Wisdom and the **transcendental end is complete knowledge of Wisdom**. The form of the timeless end is a set of incomplete descriptions of the world. These descriptions ought to be as simple as possible, but not simpler; and the set of descriptions ought to be as small as possible, but not smaller. **The form of the transcendental end is the most useful form for a perfectly wise being in deciding well.**²⁷”

Chapter 3, Leaving Behind Modern Explanations, last paragraph, last sentence, footnote

Moved the reference from the first sentence to the last.

Chapter 3, *Three Approaches to Overcoming Constraints*, title

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed title to: “*Three Approaches to Policy*.”

Chapter 3, *Three Approaches to Policy*, all paragraphs

“Pursuing Wisdom calls for us to choose problems well, which in turn calls for us to think beautifully. The concept of thinking beautifully will likely seem strange to most modern readers. This is in part due to the modern habit of confusing mental models with reality. We saw this in the EOQ example, in which modern managers confused the EOQ model with reality. We can also see it in the claim that we can compute π .

“From the view of mathematics, π is *computable*, which is to say that we can program a **Turing machine**, an abstract computing machine that does nothing more than follow programmed rules, to compute π . In contrast, from the view of the multiple-frame model of pursuing Wisdom, π is not computable. The false claim that π is computable arises from reducing the actual problem of computing π to an abstract problem of computing π . As we shall see throughout this work, the tendency of people who excel at abstract reasoning to ignore worldly constraints is common.

“Imagine giving the greatest scientific minds of 1776 the task of computing the value of π to **one trillion** (10^{12}) decimal places. **The most likely result would be a description of the best tool for computing π in 1776 and the explanation that computing π to one trillion decimal places was possible in theory but impossible in practice. No one in 1776 imagined what we currently call supercomputers.**³

“Now imagine giving the greatest scientific minds of today the task of computing π to **one googol** (10^{100}) decimal places. **Based on how they respond to this challenge, these people will likely fall into one of two basic groups. The first group will report how computing π to one googol decimal places might be done using currently existing or imagined computing tools. Because this approach relies on currently existing or imagined tools to pursue our chosen ends, we may call it *the temporal approach to overcoming constraints*. The second group will report that it is currently impossible to imagine what computing tools will first make computing π to one googol decimal places possible. Over time, people competing for scarce resources will invent ever better means of computing. Because this approach relies on **endless competition to produce the tools we need to pursue our chosen ends**, we may call this *the timeless approach to overcoming constraints*.**⁴

“From the view of the multiple-frame model of pursuing Wisdom, there is a third **group**. **This group will report that the best means of computing π to one googol decimal places is to pursue Wisdom, hence to pursue the virtuous circle of good people and good products. Over time, pursuing this virtuous circle will yield computing tools capable of computing π to far beyond one trillion decimal places.** We may call this *the invariant approach to overcoming constraints*.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the view of mathematics, π is *computable*, which is to say that we can program an abstract computing machine that does nothing more than follow programmed rules to compute π . In contrast, from the view of the multiple-frame model of pursuing Wisdom, π is not computable. The false claim that π is computable arises from reducing the actual problem of computing π to an abstract problem of computing π that ignores constraints. If wishes were horses beggars would ride. The following thought experiment explains how three distinct approaches to overcoming constraints give rise to three distinct approaches to policy.

“Imagine giving the greatest minds of 1776 the task of computing the value of π to a trillion decimal (10^{12}) places.³ Most of these people would likely provide what they believed to be the best means of computing π . Because this approach relies on currently existing means of overcoming constraints, we may call this *the temporal approach to overcoming constraints*. From this view, we ought to promote solutions that use existing tools. We may call this the *engineering approach to policy*.

“Now imagine giving the greatest minds of today the task of computing π to a googol (10^{100}) decimal places. Some of these people would likely provide what they believe to be the best means of computing π . Others would likely say that people seeking to live well will invent ever better means of computing and that we cannot imagine what better means they will invent. Because this approach relies on the timeless process of living well, we may call this *the timeless approach to overcoming constraints*.⁴ From this view, we ought to promote the timeless end of living well and leave the problem of overcoming constraints to people to work out among themselves. We may call this the *biological approach to policy*.

“From the view of the multiple-frame model of pursuing Wisdom, there is a third approach to overcoming constraints. People taking this approach would say that the best means of computing π to a googol decimal places is to pursue Wisdom. We may call this *the invariant approach to overcoming constraints*. This approach suggests that we ought to promote the invariant end of deciding well and leave the problem of overcoming constraints to people to work out among themselves. From this view, we ought to promote pursuing Wisdom using the multiple-frame model of pursuing Wisdom and leave the problem of overcoming constraints to people to work out among themselves. We may call this the *public approach to policy*.”

Chapter 3, *Public Order*, first three paragraphs

“These three approaches to overcoming constraints suggest three distinct approaches to policymaking. The temporal approach to overcoming constraints suggests that policymakers ought to promote solutions to problems that use currently existing or imagined tools. From this view, excellence in means concerns *efficiency at solving given problems*. We may call this the *engineering approach to policymaking*.

“The timeless approach to overcoming constraints suggests that policymakers ought to promote the modern economic goal of living well and leave the problem of overcoming

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

constraints to the marketplace of ideas. From this view, excellence in means concerns *fitness for an ever changing environment created by people acting like social animals*. We may call this the *biological approach to policymaking*.

“The invariant approach to overcoming constraints suggests that policymakers ought to promote the invariant process of deciding well and leave the problem of overcoming constraints to the marketplace of ideas. From this view, excellence in means concerns *fitness for an ever changing environment created by people deciding ever more wisely*. We may call this the *public approach to policymaking*.”

were deleted.

Chapter 3, *Invariant Public Order*

Merged this subsection into the *Public Order* subsection.

Chapter 8, heading, first quote

““Philosophy, as I shall understand the word, is something intermediate between theology and science. Like theology, it consists of speculations on matters as to which definite knowledge has, so far, been unascertainable; but like science, it appeals to human reason rather than to authority, whether that of tradition or that of revelation. All *definite* knowledge — so I should contend — belongs to science; all *dogma* as to what surpasses definite knowledge belongs to theology. But between theology and science there is a No Man’s Land, exposed to attack from both sides; this No Man’s Land is philosophy.” — *Bertrand Russell*”

¹ Russell, Bertrand, *A History of Western Philosophy* (New York: Simon and Schuster, 1967), p. xiii.”

was changed to:

“1 The world is everything that is the case. ...
2 What is the case, the fact, is the existence of atomic facts. ...
7 Whereof one cannot speak, thereof one must be silent.” — *Ludwig Wittgenstein*”

¹ Wittgenstein, Ludwig *Tractatus Logico-Philosophicus* (New York, Cosimo Classics, 2010), principal propositions 1, 2, and 7. This is the C. K. Ogden translation, which is also available online at Project Gutenberg <<http://www.gutenberg.org/ebooks/5740>> (7 May 2011).”

Chapter 8, Useful Reasoning, first paragraph, last two sentences

“We may call excellence in relating beliefs *reason*. We may also call the rules that we use to help us relate beliefs well the *rules of reason*.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“We may call excellence in relating beliefs *reason* and the rules that we use to help us relate beliefs well the *rules of reason*.”

Chapter 8, Useful Reasoning, second paragraph

“When we pursue timeless ends, we seek not only to seek to solve given **temporal** problems, but also to find problems to solve. Excellence in relating beliefs concerns not only **relating beliefs within** the frames that we use to solve **temporal** problems, but also **in relating beliefs within the frames that** we use to find problems to solve. We may call the set of rules that we use to **relate beliefs within the frames that we use to find problems to solve in pursuing timeless ends** the *rules of dialectics* after the dialectic form of discourse that Socrates used to explain what timeless ends **and the means to timeless ends** are not.”

was changed to:

“When we pursue timeless ends, we seek not only to solve given problems, but also to find problems to solve. Excellence in relating beliefs concerns not only the frames we use to solve given problems, but also **those** we use to find problems to solve. We may call the set of rules that we use to **judge the latter** the *rules of dialectics* after the dialectic form of discourse that Socrates used to explain what timeless ends are not.”

Chapter 8, Useful Reasoning, fourth paragraph

Changed “**temporal**” to “**given**” in the first sentence.

Chapter 8, Useful Reasoning, fifth paragraph

Changed “**contemplating**” to “**addressing**” in the last sentence.

Chapter 8, Useful Reasoning, last paragraph, footnote, last sentence

“**They may discover that quantum mechanics makes more sense than modern common sense.**”

was deleted.

Changes in Version 2011.05.10

Chapter 2, *Pleasure and Pain*, second paragraph

Changed “**logic**” to “**reasoning**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, *Pleasure and Pain*, sixth paragraph

Changed “logic” to “reasoning” in the last sentence.

Chapter 3, *Public Order*, last three paragraphs

“Associated with each of these three ways of thinking about policymaking is a distinct way of thinking about public order. From the engineering view, the role of policymakers is to find and solve public problems. The way policymakers define the problem and its solution provides them with a concept of order. In addressing their chosen problem and solution, policymakers impose their sense of order on the world. Hence, increasing public order is always good.

“From the biological view, the role of policymakers is to promote an environment that helps people find and solve problems that hinder them from increasing their ability to survive and thrive. Here, public order concerns the freedom of people to act on their current beliefs about how best to survive and thrive. Either too much or too little public order shuts down the experimentation needed to increase fitness. Hence, increasing public order is good when there is too little of it and bad when there is too much of it.

“From the public view, the role of policymakers is to promote an environment that helps people pursue Wisdom. This gives rise to a timeless concept of public order, which we may call invariant public order. Pursuing invariant public order is always good.”

were changed to:

“Associated with each of these three ways of thinking about policy is a distinct way of thinking about public order. From the engineering view, policymakers find and solve public problems. In doing so, they seek to impose their sense of order on the world. From this view, increasing public order is always good.

“From the biological view, policymakers promote a climate that helps people live well. This includes allowing people to experiment with new ways of living well. Too much or too little public order shuts down this experimentation. From this view, increasing public order is good when there is too little of it and bad when there is too much of it.

“From the public view, policymakers promote a climate that helps people pursue Wisdom. This gives rise to an invariant concept of public order that concerns how well people decide. Increasing invariant public order is always good.”

Chapter 3, *Decision-Oriented Models of Quantum Mechanics*, third paragraph

Changed “logic” to “reasoning” in the second to last sentence.

Chapter 8, *Useful Reasoning*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “Again, pursuing” to “Pursuing” in the first sentence.

Chapter 8, Useful Reasoning, second paragraph

Changed “problem that is bounded in time” to “temporal problem” in the second sentence.

Chapter 8, Useful Reasoning, fourth paragraph, last sentence

“The least ambiguous means of defining these two concepts is to define each in terms of the other.”

was deleted.

Chapter 8, Useful Reasoning, fifth paragraph

“Unlike logic, dialectics reminds us of our fallibility. Given our incomplete knowledge of how to decide well in pursuing timeless ends, we make mistakes. In terms of this work, we embed mistakes into our networks of knowledge-in-use. Knowledge of our fallibility in pursuing timeless ends encourages us to examine the tools we use to guide our actions.³ However, when we combine this knowledge with the belief that there are experts who know more than we do about how we ought to live, we tend to give too much power to experts. In addressing our fallibility, we ought to follow the personal example of Socrates, not the politics of Plato.”

“³ In terms of nineteenth-century German idealism, the internal contradictions of the models we use to guide our actions build up to a crisis that leads us to change our beliefs.”

was deleted.

Chapter 8, Natural Reasoning, all paragraphs

“The multiple-frame model of pursuing Wisdom is something that we discover, not something we invent. It emerges from the combination of the inexhaustibility of knowledge and the internal drive for all living things to seek to survive and thrive. In seeking to make the best use of knowledge, living beings learn to cooperate with one another.

“From the view of modern biology, living beings cooperate well in order to compete well. In other words, pursuing the timeless end of cooperating well is subordinate to pursuing the timeless end of competing well. From this view, people who seek to cooperate before they seek to compete, to look first for win-win solutions to resource problems before they seek to compete over resources, are an anomaly.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In contrast, from the view of the multiple-frame model of pursuing Wisdom, living beings compete well in order to cooperate well, in order to make the best use of knowledge resources in living well. **In other words, pursuing the timeless end of competing well is superior to pursuing the timeless end of competing well.** Only when **living beings** lack the means to cooperate do they compete. Living beings that seek to compete before they seek to cooperate are the special case of **living** beings that have not yet developed the **means to pursue Wisdom using the multiple-frame model of pursuing Wisdom.** Even the lowest form of life may evolve into a form capable of understanding the multiple-frame model of pursuing Wisdom.

“Which of these **two** views of the relation between cooperating well and competing well is the better **view** for helping us find problems to solve, hence for explaining the world? **In theory, the multiple-frame model is more complete, hence better than the biological model at helping us find problems to solve. In practice, the multiple-frame model, which has us seek win-win solutions before choosing to compete, is also better than the biological model at helping us find problems to solve.**

“People who seek **empirical** evidence supporting one or the other of these **theories** would **be wise** to study **the** power law distributions **of the products of economic activity.** These include the distributions of wealth and income studied by Vilfredo Pareto and the distribution of changes in commodity prices studied by Benoit Mandelbrot. **Such** distributions are the result of some self-similar process or processes. From the view of modern biology, it is not clear what this process or these processes might be. From the view of the multiple-frame model of pursuing Wisdom, it is clear that this process is pursuing Wisdom.”

were changed to:

“From the view of modern biology, living beings cooperate well in order to compete well. Those that seek to cooperate before they seek to compete, to look first for win-win solutions to resource problems before they seek to compete over resources, are an anomaly. In contrast, from the view of the multiple-frame model of pursuing Wisdom, living beings compete well in order to cooperate well. **They seek to cooperate well** in order to make the best use knowledge in living well. Only when **they** lack the means to cooperate **well** do they compete. Living beings that seek to compete before they seek to cooperate are the special case of beings that have not yet developed **the wisdom to do otherwise.** Which of these views is the better view for helping us find problems to solve, hence for explaining the world?

“People who seek evidence supporting one or the other of these **views** would **do well to** study power-law distributions **in economies.**⁵ **These** distributions are the result of some self-similar process or processes. From the view of modern biology, it is not clear what this process or these processes might be. From the view of the multiple-frame model of pursuing Wisdom, it is clear that this process is pursuing Wisdom.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“**These power-law distributions include the distributions of wealth and income studied by Vilfredo Pareto and the distribution of changes in commodity prices studied by Benoit Mandelbrot.**”

Changes in Version 2011.05.16

Preface, second paragraph, second sentence

“As we shall see, these people confuse the temporal with the timeless. In doing so, they fail to make the best use of what they currently know.”

were changed to:

“These people confuse the temporal ends **of seeking the truth and pursuing wisdom** with the timeless **end of seeking the truth and wisdom.**”

Preface, fifth paragraph

Changed “basic **process**” to “basic **model**” in the first sentence.

Preface, sixth paragraph

Changed “**go on to describe**” to “**end**” and “**equivalent**” to “**analogue**” in the last sentence.

Preface, seventh paragraph

Changed “decision-**oriented**” to “decision-**tree**” in the last sentence.

Chapter 1, Useful Frames, last paragraph

Changed “**decide**” to “**muddle forward**” in the second to last sentence.

Chapter 1, *The EOQ/RTS Example*, second paragraph

Changed “tools” to “**the** tool” in the last sentence.

Chapter 1, *The EOQ/RTS Example*, last paragraph, footnote

Changed “**Appendix A**” to “**the** appendix” in the last sentence.

Chapter 1, *Basic Steps for Building Multiple-Frame Models*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We can build **ever more complete** models of pursuing Wisdom by repeating **three** basic steps. The first step is discovering a member of the set of factors of pursuing Wisdom that we can never have in excess. The second is building a useful frame for pursuing **the** boundless factor by defining it and the means to it in terms of one another. **The third is recognizing that Wisdom is a boundless factor of this boundless factor of pursuing Wisdom. In theory, each cycle through these steps yields a better model of pursuing Wisdom. In practice, these models can be too complete. In terms of modern economics, the marginal costs of using more complete models can outweigh the marginal benefits of using these models. In terms of modern physics, classical mechanics is often good enough.**”

was changed to:

“We can build models of pursuing Wisdom **that are ever more complete** by repeating **two** basic steps. The first step is discovering a member of the set of **universal** factors of pursuing Wisdom that we can never have in excess. The second is building a useful frame for pursuing **this** boundless factor by defining it and the means to it in terms of one another.”

Chapter 1, *Basic Steps for Building Multiple-Frame Models*, second paragraph, last sentence

“**We complete this simple model by recognizing that Wisdom is a boundless factor of pursuing Wisdom.**”

was deleted.

Chapter 1, *Basic Steps for Building Multiple-Frame Models*, third paragraph, last sentence

“**We then recognize that Wisdom is a boundless factor of pursuing the Truth.**”

was deleted.

Chapter 1, *Ever More Complete Multiple-Frame Models*, first two paragraphs

Merged the first two paragraphs.

Chapter 1, *Ever More Complete Multiple-Frame Models*, new second paragraph, footnote

Second sentence:

“**From the invariant view of deciding well,** the incompleteness of Quine’s epistemology gave rise to both Jaegwon Kim’s criticism of Quine’s epistemology for not having a

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

normative element and Morton White's argument with Quine over the scope of holistic pragmatism.”

was changed to:

“The incompleteness of Quine's epistemology gave rise to both Jaegwon Kim's criticism of Quine's epistemology for not having a normative element and Morton White's argument with Quine over the scope of holistic pragmatism.”

Moved footnote to the end of the last paragraph.

Chapter 1, *Ever More Complete Multiple-Frame Models*, second to last paragraph

Added the footnote:

“¹³ In theory, each new frame we add to the multiple-frame model of pursuing Wisdom yields a better model for pursuing Wisdom. In practice, the marginal costs of using models that are more complete can outweigh the marginal benefits of using these models. Just as classical mechanics is often a good enough tool for helping us solve problems, a multiple-frame model of pursuing Wisdom that includes the Good, the Truth, Justice, and Beauty is often a good enough tool for helping us find problems to solve.”

Chapter 2, *Pleasure and Pain*, first paragraph

Changed “Pleasure and pain can be seen” to “We can conceive of pleasure and pain” in the first sentence.

Deleted the footnote: “² This may include the absence of mental signals. For example, the absence of signals that our brain interprets as pain when we should feel pain signals us that our nervous system is not working properly.”

Chapter 2, *Pleasure and Pain*, second paragraph, first sentence

“Two sorts of pleasure concern us here.”

was changed to:

“We can also conceive of two basic types of pleasure.”

Chapter 2, *Wealth*, first paragraph

Changed “can be known” to “we can ever know” in the third sentence.

Chapter 2, *Chicago Screwdrivers*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “temporal tools that are not also invariant tools” to “variant tools” in the second sentence.

Chapter 2, Production, first paragraph

Changed “; hence” to “, thus” in the second and fourth sentences (2 occurrences).

Chapter 2, Profit, first paragraph

Changed “what is left over from” to “what remains of” in the first sentence.

Changed “simply the return” to “the return” in the last sentence.

Chapter 3, Public Order, fourth through last paragraphs

“Imagine a team cycling race in which we measure excellence by the average time it takes team members to complete a two hundred kilometer course. During this event, team members can interact only with one another and not with members of other teams. How should team members choose to order themselves?”

“Imagine how a team taking an engineering approach to policymaking would approach the problem of ordering themselves in this situation. The first task would be to reduce the ill-defined problem to a problem or set of problems that members of the team can solve. The simplest solution would be to choose a single public order for all conditions expected along the course. A refinement to this solution would be to choose different public orders for different conditions. There might be an order for traveling over flat terrain, another for traveling up hills, and a third for traveling down hills. Another refinement would be to develop procedures for rotating cyclists from more tiring positions to less tiring positions as they become tired within a given type of order. Yet another refinement would be to develop procedures for rotating cyclists from more tiring positions to less tiring positions when the team shifts between types of order. Over time, the team would refine their ability to maintain orders and to shift between these orders. To an outside observer, an accomplished team taking this approach would resemble an expert military drill team.

“Imagine how a team taking a biological approach to policymaking would approach the problem of ordering themselves in this situation. Team members would develop relatively simple rules for overcoming constraints. Over time, they would learn ever better rules for overcoming constraints. To an outside observer, an accomplished team taking this approach would resemble a school of fish or a flock of birds.

“Finally, imagine how a team taking the public approach to policymaking would approach the problem of ordering themselves in this situation. Team members would distinguish between the tactical end of cycling well based on what they currently know and the strategic end of deciding well. In addressing the tactical problem, they would choose to make the best use of current resources in addressing the tactical problem of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

cycling well. In addressing the strategic problem, **they** would seek ever better means of replacing non-knowledge resources useful in deciding well with knowledge resources useful in deciding well. In short, they would seek ever better means of deciding well.

“In **seeking ever better means of deciding well**, the team would consider technological as well as organizational changes. One such change would be the combination of regenerative braking and boosting motors. This combination would allow cyclists to store otherwise wasted energy from cycling downhill to use when cycling uphill. Another such change would be a networked steering control system similar to experimental automated highway control systems that allow cars to travel bumper-to-bumper at high speeds. Such a system would execute tactical moves much more quickly and precisely than people can execute them. The combination of regenerative breaking, boosting motors, and automated steering would quickly lead to the development of a means of transferring power from one vehicle to another. This change would eliminate the need to rotate team members from tiring positions to less tiring positions. It would also allow the team to reduce wind resistance by putting cyclists who ride taller than others near the center of the pack. **To a long-standing outside observer**, an accomplished team taking the public approach **to overcoming constraints** would resemble a liquid that undergoes phase changes as it becomes ever more fluid.”

were changed to:

“**We can use the example of a cycling race to imagine the results of each of these types of public order**. Imagine a **team time trial** in which we measure excellence by the average time it takes team members to complete a two hundred kilometer course. During this event, team members can interact only with one another and not with members of other teams.

“**A** team taking an engineering approach would approach the problem of ordering themselves. Their first task would be to reduce problem **of ordering themselves** to a set of problems that **they can address using what they currently know**. The simplest solution would be to choose a single public order for all conditions along the course. A refinement would be to choose different public orders for different conditions. There might be an order for moving over flat terrain, another for moving up hills, and a third for moving down hills. Another refinement would be to develop procedures for rotating cyclists from more tiring positions to less tiring positions as they become tired. Over time, the team would refine their ability to maintain orders and to shift between these orders. **An** accomplished team taking this approach would resemble an expert military drill team.

“**A** team taking a biological approach would **invent** rules for overcoming constraints. **For example, they would develop rules for drafting behind one another**. Over time, they would **invent** ever better rules for governing their behavior. An accomplished team taking this approach would resemble a school of fish or a flock of birds.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“A team taking the public approach would distinguish between the tactical end of cycling well based on what they currently know and the strategic end of deciding well. In addressing the tactical problem, **the team** would choose to make the best use of current resources in addressing the problem of cycling well. **In the short run, an accomplished team taking this approach would resemble teams taking engineering or biological approaches.**

“In addressing the strategic problem, the team would **seek ever better means of replacing non-knowledge resources useful in deciding well with knowledge resources useful in deciding well. Hence, it** would consider technological as well as organizational changes. One such change would be the combination of regenerative braking and boosting motors. This combination would allow cyclists to store otherwise wasted energy from cycling downhill to use when cycling uphill. Another such change would be a networked steering control system similar to experimental automated highway control systems that allow cars to travel bumper-to-bumper at high speeds. Such a system would execute tactical moves much more quickly and precisely than people can execute them. The combination of regenerative braking, boosting motors, and automated steering would quickly lead to the development of a means of transferring power from one vehicle to another. This change would eliminate the need to rotate team members from tiring positions to less tiring positions. It would also allow the team to reduce wind resistance by putting cyclists who ride taller than others near the center of the pack. **In the long run, an accomplished team taking the public approach would resemble a liquid that undergoes phase changes as it becomes ever more fluid.”**

Chapter 3, *Zero Public Entropy*, first two paragraphs

“Liquids that undergo phase changes as they become ever more fluid lie outside of our everyday experience. A dramatic example of such a liquid is that of the isotope of helium that has two neutrons and two electrons (**helium-4**). **Helium-4** atoms are **objects subject to quantum effects having integer spin, which physicists call bosons**. Unlike **objects subject to quantum effects having non-integer spin, which physicists call fermions**, more than one boson can occupy the same quantum state. Statistically, this is unlikely to happen unless bosons enter their **lowest energy state, which physicists call their ground state**. As **the temperature approaches absolute zero (0 degrees Kelvin), an ever larger number of ⁴He atoms enter their ground state**. At 2.172 degrees Kelvin, a large enough percentage **of helium-4 atoms** enter this state for **the liquid to suddenly change from being only slightly more fluid than classical physics predicts to being much more fluid than classical physics predicts**. In **other words**, liquid helium suddenly changes from being a fluid (**Helium I**) to a superfluid (**Helium II**).

“One lesson that we can learn from **studying liquids like helium-4** is the usefulness of the concept of entropy **in pursuing transcendental ends**. Entropy is a measure of the amount of potentially **available** useful resources in an object. **In modern thermodynamics, entropy is a measure of the potentially useful energy resources in a part of the world. We pursue the transcendental end of zero thermodynamic entropy by removing useful energy from a part of the world. In invariant decision science, entropy**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

is a measure of the potentially available non-knowledge resources useful in deciding well in a process of deciding well. We pursue the transcendental end of *zero public entropy* by removing available non-knowledge resources useful in deciding well from a process of deciding well, thereby inducing the creation of knowledge resources useful in deciding well.⁵⁷

“⁵ Zero public entropy is the transcendental end of the process of inducing the creation of knowledge useful in deciding well. It is the space-time equivalent of the state-of-the-world in which it is not possible to make one person better off without making another person worse off (Pareto optimality). From the view of a person behind the veil of complete ignorance, it is the ideal process of deciding well. For more on the process of inducing the creation of knowledge, see Appendix A.”

were changed to:

“Liquids that undergo phase changes as they become ever more fluid lie outside of our everyday experience. A dramatic example of such a liquid is that of the isotope of helium that has two neutrons and two electrons (⁴He). These atoms are bosons (objects that have integer spin). Unlike fermions (objects that have non-integer spin), more than one boson can occupy the same quantum state. Statistically, this is unlikely to happen unless bosons enter their ground state (lowest energy state). As we remove more energy from these bosons, more of them enter their ground state. At just below 2.2 degrees Kelvin and one atmosphere of pressure, a large enough percentage of them enter their ground state for this liquid to change from being only slightly more fluid than classical physics predicts (Helium I) to being much more fluid than classical physics predicts (Helium II). In short, it changes from being a fluid to a superfluid.

“Superfluid ⁴He atoms interact with each other too much for all of them to enter their ground state. However, other types of bosons do not have this problem. For example, the bosonic form of rubidium enters a state of matter in which all atoms are in their ground state at 170 billionths of a degree above absolute zero. In this state, which physicists call a Bose Einstein condensate, groups of atoms act as if they were a single quantum particle. In this state, we can observe quantum effects on a macroscopic level.

“One lesson that we can learn from studying how liquids become superfluid is the usefulness of the concept of entropy. Entropy is a measure of the amount of potentially useful resources in an object. Modern scientists first used this concept to think about engines that derive useful work from differences in heat. In this context, entropy is a measure of the amount of useful energy that it is theoretically possible to remove from an object. They later used this concept to think about the amount of useful information in an object. In this context, entropy is a measure of the amount of signal that is theoretically possible to remove from an object. We may use this concept to think about useful resources in decision processes. In this context, entropy is a measure of the amount of wealth that it is theoretically possible to remove from a decision process. We may call this measure *public entropy*. We pursue the transcendental end of *zero public*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

entropy by removing *non-knowledge wealth* from a *decision* process, thereby inducing the creation of knowledge *wealth*.⁵”

“Zero public entropy is the transcendental end of the process of inducing the creation of knowledge useful in deciding well. It is the dynamic alternative to Pareto optimality.⁶ From the view of a person behind the veil of complete ignorance, it is the ideal process of deciding well.”

⁵ For more on the process of inducing the creation of knowledge, see *the appendix*.”

⁶ Pareto optimality is the state of the world in which it is impossible to make any person better off without making at least one other person worse off.”

Chapter 3, *Zero Public Entropy*, last two paragraphs

“We can use the concept of zero public entropy to help us find problems to solve. As we saw in the EOQ example, the concepts we use to frame our problems tend to blind us to finding better problems to solve. In the *team* cycling example above, one such blinder is the association of “cycling” with “bicycling.” This *association* tends to blind us to *possibilities for substituting* knowledge for non-knowledge *resources in ways that would violate our concept of bicycling*. These *possibilities* include regenerative breaking, boosting motors, and automated steering. A strategy based on lowering public entropy, *a strategy of removing ever more non-knowledge resources useful in deciding well from the endless process of deciding well*, would reveal this problem.”

“A more subtle blinder *in the team cycling example* is the false belief that we can separate *the problem of cycling well from the problem of deciding well*. For a team of cyclists to take a truly public approach to overcoming constraints, its solution to *the problem of cycling well* must be part of the solution to *the problem of deciding well*. *For this to be true*, being part of the team must be something every team member needs *to do in order* to decide well *rather than simply something every team member wants to do*. Again, a strategy based on lowering public entropy, *a strategy of removing ever more non-knowledge resources useful in deciding well from the process of deciding well*, would reveal this problem. Here, we see how lowering public entropy creates a problem whose solution does not fit within the bounds of our chosen problem of cycling well. In general, lowering public entropy reveals not only problems *whose solutions fall within the bounds of our chosen problem*, but also *problems whose solutions surpass the bounds of our chosen problem, thereby overturning the belief system that led us to choose the problem we chose*. We may call the *problems whose solutions fall within the bounds of our chosen timeless problem as we currently understand it normal problems* and those that surpass the bounds of our chosen timeless problem as we currently understand it *revolutionary problems*.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We can use the concept of zero public entropy to help us find problems to solve. As we saw in the EOQ example, the concepts we use to frame our problems tend to blind us to finding better problems to solve. In the cycling example above, one such blinder is the way we associate “cycling” with “bicycling.” This tends to blind us to ways of replacing knowledge wealth for non-knowledge wealth. These include regenerative braking, boosting motors, and automated steering. A strategy based on lowering public entropy would reveal this problem.

“A more subtle blinder is the false belief that we can separate one decision process from all others. For a team of cyclists to take a truly public approach to overcoming constraints, its solution to cycling well must be part of the solution to deciding well. Hence, being part of the team must be something that every team member needs to decide well. In general, lowering public entropy reveals not only problems with solutions that fall within the bounds of chosen problems, but also those that surpass these bounds. We may call the former *normal problems* and the latter *revolutionary problems*.”

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, first three paragraphs

“Another lesson that we can learn from studying liquids like helium-4 is that we can use the knowledge of what happens as we approach such natural boundaries as absolute zero temperature to help us understand subtle changes that happen far from these natural boundaries. By studying what happens in extreme cases, we can gain a deeper understanding of our everyday world. By studying what happens as we approach the transcendental end of absolute zero temperature, we may refine our beliefs about how what happens at the microscopic level of quantum mechanics affects what happens on the macroscopic level of what we currently call the natural sciences. Similarly, by studying what happens as we approach the transcendental end of absolute zero public entropy, we may refine our beliefs about how what happens on the microscopic level of quantum mechanics affects what happens on the macroscopic level of decision science.

“Although quantum mechanical models provide us with incredibly accurate *statistical* predictions about what will happen on the microscopic level, it does not provide us with exact predictions about what will happen on this level. This uncertainty is due to two strange behaviors of objects on this level. First, these objects can act either like waves or like particles. Second, pairs of these objects may become entangled in such a way that changing the state of one object instantaneously changes the state of the other object regardless of how distant the other object is. Rigorous empirical testing over many decades has failed to disprove the existence of these two strange behaviors.

“For more than seven decades physicists have been trying to interpret the mathematical models of quantum mechanics in ways that ring true with what they believe they know about causation on the macroscopic level. Most of these interpretations fall into one of three basic categories. The first of these basic categories contains interpretations that claim we should not waste resources trying to explain how objects at this level behave.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

We may call this the *Copenhagen interpretation* category. The second of these categories contains interpretations that claim that in time we will be able to find currently hidden variables that explain how objects at this level behave. We may call this the *hidden-variables interpretation* category. The third of these categories contains interpretations that claim that every possible way that an object can transition irreversibly from acting like a wave to acting like a particle actually happens. When one of these irreversible events happens, the world⁶ splits into a world in which the event occurs and into another world in which the event does not occur. Following this logic, everything that could possibly have happened since the beginning of time has actually happened. We may call this the *many worlds interpretation* category.”

were changed to:

“Another lesson that we can learn from studying how liquids become superfluid is the usefulness of studying extreme cases. By studying what happens as we approach absolute zero, we may refine our beliefs about how quantum mechanics relates to everyday life.

“Quantum mechanics provides us with statistical rather than exact predictions about what will happen on the microscopic level. This shortcoming is due to two strange behaviors of objects on this level. First, when objects on this level interact with one another, they act like particles; but when they do not interact with one another, they act like waves. Second, entangled pairs of these objects defy our common sense beliefs about cause and effect. Regardless of how far away the two objects in an entangled pair are from one another, changing the state of one instantaneously changes the state of the other. Decades of experiments have failed to disprove the existence of these two strange behaviors.

“For as many decades as physicists have known of these strange behaviors, they have been trying to explain them in a way that rings true with what else they believe they know. Most of these explanations fall into one of three basic categories. The first of these contains explanations that claim we should not waste resources trying to explain how quantum-level objects behave. We may call this the *Copenhagen interpretation* category. The second contains explanations that claim that we will be able to find hidden variables that explain how these objects behave. We may call this the *hidden-variables interpretation* category. The third contains explanations that claim that every time one of these objects irreversibly transitions from acting as a wave to acting as a particle, the world⁶ splits into a world in which the transition occurs and into another world in which it does not occur. Following this logic, everything that could have happened since the beginning of time has actually happened. We may call this the *many worlds interpretation* category.”

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, last three paragraphs

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the view of the multiple-frame model of pursuing Wisdom, there is a fourth way we can interpret the quantum mechanics. It involves creating a new way of thinking about how we collectively decide well. If all people pursue Wisdom, and do so well, we can treat all people as if they were a single decider. This allows us to use a decision tree model⁷ to relate quantum mechanics to everyday thinking.⁸ In this model the world consists of (1) a sequence of once current states-of-the-world, (2) a current state-of-the-world, and (3) a nearly infinite set of currently possible states-of-the-world. In short, the world consists of a past, a present, and a nearly infinite number of possible futures. Every time a quantum object irreversibly transitions from acting like a wave to acting like a particle, the current state-of-the-world changes and a nearly infinite number of possible states-of-the-world cease to be possible states-of-the-world. We may call this forward-looking, boundlessly-pragmatic approach to interpreting quantum mechanics the decision tree interpretation.

“From the view of modern physics, the decision tree interpretation of quantum mechanics appears to ignore such things as constraints on deciding well imposed by relativity theory and information theory. In contrast, from the invariant view of decision science, this interpretation hides details about the world as we currently understand it inside the decision model. This is consistent with the purpose of these models, which is to help us find and solve problems in pursuing Wisdom.”

“Consider the problem of whether to invest in a research program that has a goal of overcoming the constraint of communicating at greater than light speed. From the view of modern physics, communicating at greater than light speed is impossible; hence investing in a research program to discover a way of communicating at greater than light speed would be foolish. From the view of what we currently call the natural sciences, communicating at greater than light speed does not ring true with what else we currently know about physics; hence investing in such a research program would likely be foolish. From the view of decision science, the net present value of the benefits of communicating at greater than light speed are currently likely to be small compared to the net present value of the cost of the research program; hence investing in such a research program would likely be foolish. From the view of the multiple-frame model of pursuing Wisdom, the most beautiful solution to the problem of whether to invest in this research program is the decision science solution.”

were changed to:

“From the public view, there is a fourth category. In it, the world consists of a past, a present, and a nearly infinite number of possible futures. Every time a quantum-level object irreversibly transitions from acting as a wave to acting as a particle, the current state-of-the-world changes and a nearly infinite number of possible states-of-the-world cease to be possible states-of-the-world. We may call this the decision interpretation category.

“A Decision-Tree Interpretation of Quantum Mechanics

One member of this new category is a model in which we assume that there are no

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

constraints on gathering and using information. Information flows as freely as it does in the modern economic model of perfect competition. In this ideal model, people pursue Wisdom using the multiple-frame model of pursuing Wisdom. Hence, markets tend toward the dynamic equilibrium of zero public entropy rather than the static equilibrium of Pareto optimality. When people pursue Wisdom, markets tend toward Justice.

“In this ideal model, all information, including wisdom, flows freely. What modern economists view as consuming is producing pleasure, joy, and wisdom.

“In this ideal model, people decide perfectly. In deciding perfectly, all people act as if they were a single decider facing a single problem, which is the public problem that contains all other problems.

“We may think of this model as a single decision-tree⁷ in which events are either under the control of people pursuing Wisdom or not under the control of people pursuing Wisdom.⁸ This is compatible with the decision interpretation of quantum mechanics.

“From the view of modern physics, this decision-tree interpretation of quantum mechanics appears to ignore constraints on deciding well imposed by relativity theory and information theory. In contrast, from the invariant view of decision science, this interpretation hides details about the world inside the decision model. This is consistent with the purpose of these models, which is to help us find and solve problems in pursuing Wisdom.”

“Consider the problem of whether to invest in a research program that has **the** goal of overcoming the constraint of communicating at greater than light speed. From the view of modern physics, communicating at greater than light speed is impossible; hence investing in a research program to discover a way of communicating at greater than light speed would be foolish. From the view of what we currently call the natural sciences, communicating at greater than light speed does not ring true with what else we currently know about physics; hence investing in such a research program would likely be foolish. From the view of decision science, the net present value of the benefits of communicating at greater than light speed are likely to be small compared to the net present value of the cost of the research program; hence investing in such a research program would likely be foolish *at this time*. From the view of the multiple-frame model of pursuing Wisdom, the most beautiful solution to the problem of whether to invest in this research program is the decision science solution.”

Chapter 4, Refining Deciding Well, fourth paragraph

Changed “**civil** research program” to “**public** research program” in the first sentence.

Chapter 5, Liberalism, second paragraph

Changed “**timeless liberal** view” to “view **of the multiple-frame model of pursuing Wisdom**” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 6, *Schweitzer's Universal Spiritual Need*, first paragraph

Changed “**It is this need that** Maslow’s fully human Westerners seek to satisfy” to “Maslow’s fully human Westerners seek to satisfy **this need**” in the second sentence.

Chapter 6, *Schweitzer's Universal Spiritual Need*, second paragraph, first sentence

“Schweitzer saw two means of satisfying the need for mystical oneness, *ethical* and *magical mysticism*.”

was changed to:

“Schweitzer saw two means of satisfying the need for mystical oneness. **These are** *ethical* and *magical mysticism*.”

Chapter 6, *Heroic Death*, last paragraph

Changed “, or **do we learn**” to “or” in the second sentence.

Chapter 8, *Useful Reasoning*, fourth paragraph

Changed “**possibility of finding better means for finding problems to solve**” to “**room for better visions within the current frame**” in the last sentence.

Chapter 8, *Useful Reasoning*, last paragraph, footnote

“Students of Western thought may better understand the distinction between logic, dialectics, and Reason by studying Ludwig Wittgenstein’s conversion from a picture theory of language, which he based on an explicitly temporal view of the world, to an instrumental theory of language, which he based on everyday thinking. **As a result of this conversion**, Wittgenstein came to believe that the goal of understanding language was to show the fly the way out of the fly-bottle. In contrast to this biological goal, the public goal of understanding language is to help people pursue Wisdom, **hence the Good, the Truth, Justice, Beauty, and all of the other boundless factors of pursuing Wisdom**. These students may find **the** decision-oriented interpretation of quantum mechanics to be useful in thinking through the problems of existence and consciousness, e.g., whether a carp that glows in the dark can be said to exist if it only exists in the mind of a genetic **scientist** who knows how to make fish that glow in the dark.”

were changed to:

“Students of Western thought may better understand the distinction between logic, dialectics, and Reason by studying Ludwig Wittgenstein’s conversion from a picture theory of language, which he based on an explicitly temporal view of the world, to an instrumental theory of language, which he based on everyday thinking. Wittgenstein came to believe that the goal of understanding language was to **help people live good**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

lives. In his words, it was to “show the fly the way out of the fly-bottle.” In contrast to this biological goal, the public goal of understanding language is to help people pursue Wisdom. These students may find decision-oriented interpretations of quantum mechanics to be useful in thinking through the problems of existence and consciousness, e.g., whether a carp that glows in the dark can be said to exist if it only exists in the mind of a geneticist who knows how to make fish that glow in the dark.”

Changes in Version 2011.05.26

Preface, fourth paragraph

Changed “this pursuit” to “it” in the second and fifth sentences (2 occurrences).

Preface, sixth paragraph

Changed “decide well” to “decide well using this model” in the second sentence.

Changed “conceptual frameworks useful in deciding well” to “universal factors of deciding well that we can never have in excess” in the last sentence.

Preface, second to last paragraph, end

Added the sentence:

“I go on to argue that this form of reasoning is the general case. It only appears to be a special case to people who are locked into a temporal view of the world.”

Chapter 1, Setting Words Aright, fourth paragraph, second footnote

“³ Kuhn, Thomas, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962), chapter 10.”

was changed to:

“³ Bruner, J. S. and Postman, L. “On the Perception of Incongruity: A Paradigm,” *Journal of Personality*, XVIII (1949), 206-23.”

Chapter 1, Ever More Complete Multiple-Frame Models, second paragraph

Changed “pursuing Wisdom well” to “pursuing Wisdom” in the first sentence.

Chapter 1, Ever More Complete Multiple-Frame Models, sixth paragraph, footnote

Changed “the Good” to “only the Good” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, Consumption, first paragraph

Changed “Hence” to “Thus” in the second and fourth sentences (2 occurrences).

Chapter 3, Leaving Behind Modern Explanations, fourth paragraph, last sentence

Changed “logical expression, to any set of logically related beliefs about the world” to “logical expression” in the last sentence.

Chapter 3, *Public Order*, fourth paragraph

Changed “team members” to “twelve team members” in the second sentence.

Added the following sentence: “Cycles must have two wheels, cannot have a seat closer to the ground than the top of the largest wheel, cannot have windscreens of any type, and cannot exceed three meters in length.”

Chapter 3, *Zero Public Entropy*, second paragraph, last sentence

“In this state, we can observe quantum effects on a macroscopic level.”

was deleted.

Chapter 3, *Zero Public Entropy*, third paragraph, footnote, end

Added the sentences:

“Note that public entropy varies inversely with physical entropy. Such is life.”

Chapter 3, *Zero Public Entropy*, last paragraph

Changed “Hence” to “Thus” in the third sentence.

Chapter 4, *Two Types of Ignorance*, second paragraph

Changed “hence” to “thus” in the second sentence.

Chapter 4, *Two Types of Ignorance*, last paragraph

Changed “hence” to “thus” in the all (3 occurrences).

Chapter 4, Refining Everyday Thinking, last paragraph, footnote, end

Added the sentences to the online version. (This change was overlooked in the PDF version):

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“On a deeper level, ‘reflexive’ implies that our thoughts about the world are not part of the world. This is consistent with the atomistic thinking of Ludwig Wittgenstein. In contrast, ‘recursive’ implies that our thoughts about the world are part of the world. This is consistent with the decision-tree interpretation of quantum mechanics. For more on this, read the last chapter.”

Chapter 4, Useful Reminders, second paragraph

Changed “this boundlessly-pragmatic approach to believing well” to “pursuing the Truth” in the first sentence.

Changed “reminds” to “tells” in the second and third sentences (2 occurrences).

Chapter 6, *Worldly Benefits of Detachment*, second paragraph

Changed “The classic of this” to “A classic example” in the last sentence.

Chapter 6, *Worldly Benefits of Detachment*, last paragraph

Changed “; it” to “. It” in the last sentence.

Chapter 6, A Common Timeless End, first paragraph

Changed “pursuing Wisdom well” to “pursuing Wisdom” in the last sentence.

Chapter 7, second paragraph

“From a temporal view of deciding well, what we currently believe is always good, hence winning others over to what we currently believe is always good. In contrast, from the view of the multiple-frame model of pursuing Wisdom, what we currently believe is not always what we need to believe in order to pursue Wisdom, hence winning others over to what we currently believe is only good if what we currently believe is what we need to believe in order to pursue Wisdom. Further, pursuing the timeless end of competing well calls not only for winning only those battles in which we are on the right side, but also for winning over people who do not share these beliefs in the way that is most conducive to pursuing Wisdom. Supreme excellence consists not only in being on the right side, but also in breaking the enemy’s resistance without fighting. The surest means of achieving this end is to pursue Wisdom deliberately.”

was deleted.

Chapter 7, The Scope of Reason, entire section

“The Scope of Reason

Pursuing ends well calls for us to overcome our ignorance of the world. This ignorance takes the form of uncertain predictions and incomplete explanations of causation.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Uncertain predictions hinder us from solving problems well. Incomplete explanations hinder us from finding the best problems to solve. Models of the world that we use to predict and explain relate beliefs about the world in ways that are useful in predicting and explaining the world. We may call excellence in relating beliefs *reason*.

“As we saw in the first chapter of this book, it is reasonable for us to use the concept of symmetry to help us find problems to solve in pursuing Wisdom. The more beautiful a problem appears to us, the more likely it is a good problem to solve.

“From the modern view of game theory, the invariant approach to finding problems to solve is irrational. In contrast, from the view of the multiple-frame model of pursuing Wisdom, the modern approach to game theory is irrational. This disagreement arises from differing concepts of reason. From the modern view of game theory, reason is a matter of following the rules of logic. In contrast, from the view of the multiple-frame model of pursuing Wisdom, reason is a matter of not only following the rules of logic, but also the rules of symmetry. We can see this difference in the problem that modern cognitive scientist Douglas Hofstadter used to introduce what he called *superrationality* to readers of his Scientific American column, *Metamagical Themas*.²

“Hofstadter sent a registered letter out to twenty people asking them to play a one-time Prisoner’s Dilemma game against each other. In each game, if both players cooperated each would receive \$3; if both defected each would receive \$1; and if one defected and the other cooperated, the defector would receive \$5 and the cooperator would receive \$0. Hofstadter told them that this was a one-time game and that, in his opinion, each player was equally bright. He asked them not to try to discuss this game with anyone, especially with other people who they thought might be other players. He also gave them several scenarios to make sure that they understood the game. He told them that if everyone cooperated, everyone would receive \$57 ($19 \times \3). If everyone defected, everyone would receive \$19 ($19 \times \1). If eleven people cooperate and nine people defect; then the cooperators will each get \$30 ($10 \times \$3 + 9 \times \0) and the 9 defectors will each get \$63 ($11 \times \$5 + 8 \times \1). He told them that defectors would always receive at least as much money as everyone else (hence would never be a “loser”), but that they should aim at getting as much money as possible rather than to be a “winner.” He also told them that the ideal situation for any one player would be to be the single defector, in which case he or she would make \$95 ($19 \times \5) and the others would each make \$54 ($18 \times \$3 + 1 \times \0). Finally, he asked each player to tell him by telephone whether they wished to cooperate (C) or defect (D), and to explain why they chose as they did.³

“From the modern view, the better solution to this game is to defect. The reason is that regardless of what the opposing player does, the deciding player is better off by defecting. If the opposing player defects, cooperating yields nothing and defecting yields \$1. If the opposing player cooperates, cooperating yields \$3 and defecting yields \$5. In contrast, Hofstadter suggests that all players consider the symmetry of the game as a whole before they settle on a strategy. Considering the game as a whole, each player can see that all players face the same problem and so should seek the same solution, which is the solution that provides the best payoff to each player. Again, if everyone

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

cooperates, each player would get \$57; and if everyone defects, each player would get \$19. Hence, the better solution is to cooperate.

“The actual results of Hofstadter’s experiment in game theory were that six people chose to cooperate and fourteen chose to defect. Both groups received less than the \$57 each would have received had all chosen to cooperate. The six cooperators each received \$15 ($5 \times \$3 + 14 \times \0) and the fourteen defectors each received \$43 ($6 \times \$5 + 13 \times \1). This result led Hofstadter to speculate that somewhere in the universe there are societies in which people compete by considering the symmetry of the whole before choosing a strategy. These “superrational” societies would tend to do better than “rational” societies.⁴

“The players’ reactions to the game were as interesting as the results themselves. An expert in modern game theory saw no reason to cooperate. A biologist was so sure that no one would cooperate that he began his phone call by announcing “Okay, Hofstadter, give me the \$19.” A physicist reported that he wanted to cooperate, but said that he couldn’t find any way of justifying it. Another player became so frustrated that he ended up flipping a coin to determine whether to cooperate or defect.⁵ These reactions are typical of how people react to perceptual and cognitive dissonance. Nearly thirty years on, the conceptual problem underlying this dissonance has remained unresolved.

“From the view of the multiple-frame model of pursuing Wisdom, this dissonance is the result of using modern game theory to explain what people will do. We may use modern game theory to help us predict what social animals will do. However, we ought never to use modern game theory to help us explain what people do. To do so would be to prescribe that people ought to act like social animals rather than wise people.

“Consider the reaction of the former author of the *Scientific American Mathematical Games* column, Martin Gardner, to Hofstadter’s game:

“Horrible dilemma. I really don’t know what to do about it. If I wanted to maximize my money, I would choose to D and expect that others would also; to maximize satisfaction, I’d choose C, and hope other people would do the same (by the Kantian imperative). I don’t know, though, how one should behave *rationally*. You get into endless regresses: ‘If they all do X, then I should do Y, but then they’ll anticipate that and do Z, and so...’ You get trapped in an endless whirlpool.”⁶

“Gardner recognized that the problem players face in Hofstadter’s game is how best to frame the problem. From the view of the multiple-frame model of pursuing Wisdom, we best frame this problem by making the problem of framing this problem part of the problem we are trying to solve. This creates an endless loop: How do we choose the best frame? We choose the frame that best helps us decide well. How do we choose the best frame for choosing the best frame? We choose the frame that best helps us decide well. How do we choose the best frame for choosing the best frame for choosing the best frame? We choose the frame that best helps us decide well... Regardless of how many

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

times we cycle through this endless loop, the answer is always that we choose the frame that best helps us decide well. From a purely logical view, this gets us nowhere. Each time we cycle through the loop, we end up back at our starting point. However, from the view of the multiple-frame model of pursuing Wisdom, each time we cycle through this loop, we expand the scope of the problem we are seeking to solve. This is consistent with Dwight Eisenhower's maxim, "If a problem cannot be solved, enlarge it." Taking this advice to its logical limit, we end with the problem that contains all other problems. We best address this universal problem by pursuing Wisdom. Within Hofstadter's game, we best pursue this timeless end by choosing the more beautiful temporal problem to solve, which is the temporal problem that calls for us to cooperate well. This temporal problem has us act like wise people rather than social animals.

"From the view of the multiple-frame model of pursuing Wisdom, Hofstadter discovered an anomaly in modern game theory as a tool for helping us find problems to solve, but did not put forth a viable alternative to modern game theory as a tool for helping us find problems to solve: He showed us a procedure that changes us from acting like social animals to acting like wise people. However, he did so using language that discouraged us from using this procedure.⁷ He told players to aim at getting the most money. He might instead have told them to act in their own best interest. He told players that they were all equally bright. He might instead have told them that they were equally wise, hence equally good, true, and just. He emphasized the one-time nature of the game. He might instead have emphasized how current choices foreclose paths forward. In explaining what he had discovered, he distinguished between "rational" defectors and "superrational" cooperators.⁸ He might instead have distinguished between "incoherent" defectors and "rational" cooperators. He might have changed the concept of excellence in thinking, which we commonly call "rationality," from a concept based on logic to one based on both logic and the symmetry of pursuing Wisdom using the multiple-frame model of pursuing Wisdom.

"The concept of excellence in thinking is one of the most important concepts in our belief systems. Changing the meaning of this key concept calls for us to restructure our entire belief system. People will tend to make these changes when they expect the benefits of making them to exceed the costs of making them. The expected benefit of making these changes increases with the size of the problem on which we base our expectations. In contrast, the expected cost of making these changes remains the same regardless of the size of the problem on which we choose to base our expectations. Hence, the larger the scope of the problem on which we base our expectations, the more likely we are to make these changes. For example, if we base our expectations on the problem that contains all other problems, we will likely make these changes; but if we base our expectations on Hofstadter's one-time game, we will likely not make them."⁹

² *Metamagical Themas* is an anagram of *Mathematical Games*, the title of the Scientific American column Martin Gardner wrote from 1956 through 1980. Hofstadter wrote this column from January 1981 until July 1983. Many of these columns expand on themes he originally put forth in his book, *Gödel, Escher, Bach, An Eternal Golden Braid*.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

³ Hofstadter, Douglas *Metamagical Themas, Questing for the Essence of Mind and Pattern* (New York: Basic Books 1985), pp. 740–1.”

⁴ *Ibid.*, p. 764.”

⁵ *Ibid.*, pp. 742–3.”

⁶ *Ibid.*”

⁷ *Ibid.*”

⁸ *Ibid.*, pp.739-55.”

⁹ This is not to say that people make such calculations before they change their belief systems. It is only to say that they tend to act as if they do.”

were changed to:

“The Scope of Game Theory

Nearly thirty years ago, cognitive scientist Douglas Hofstadter² sent a registered letter out to twenty experts asking them to play a one-time game against each other. In each game, if both players cooperated, each would receive \$3; if both defected, each would receive \$1; and if one defected and the other cooperated, the defector would receive \$5 and the cooperator would receive \$0. Hofstadter told them that this was a one-time game and that, in his opinion, each player was equally bright. He asked them not to try to discuss this game with anyone, especially with other people who they thought might be other players. He also gave them several scenarios to make sure that they understood the game. He told them that if everyone cooperated, everyone would receive \$57 (19 x \$3). If everyone defected, everyone would receive \$19 (19 x \$1). If eleven people cooperate and nine people defect; then the cooperators will each get \$30 (10 x \$3 + 9 x \$0) and the defectors will each get \$63 (11 x \$5 + 8 x \$1). He told them that defectors would always receive at least as much money as everyone else (hence would never be a “loser”), but that they should aim at getting as much money as possible rather than to be a “winner.” He also told them that the ideal situation for any one player would be to be the single defector, in which case he or she would make \$95 (19 x \$5) and the others would each make \$54 (18 x \$3 + 1 x \$0). Finally, he asked each player to tell him by telephone whether and why they wished to cooperate (C) or defect (D).

“From the view of modern game theory, the better solution to this game is to defect. The reason is that regardless of what the opposing player does, the deciding player is better off by defecting. If the opposing player defects, cooperating yields nothing and defecting yields \$1. If the opposing player cooperates, cooperating yields \$3 and defecting yields \$5. In contrast, Hofstadter suggested that all players consider the symmetry of the game as a whole before they settle on a strategy. Considering the game as a whole, each player can see that all players face the same problem and so should seek the same solution, which is the solution that provides the best payoff to each

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

player. Again, if every player cooperates, each would get \$57, and if every player defects, each would get \$19. Hence, the better solution is to cooperate.

“The results of this experiment were six people chose to cooperate and fourteen chose to defect. The cooperators each received \$15 (5 x \$3 + 14 x \$0) and the defectors each received \$43 (6 x \$5 + 13 x \$1). Both groups received less than the \$57 each would have received had all players chosen to cooperate.³

“The players’ reactions to the game were as interesting as the results themselves. An expert in modern game theory saw no reason to cooperate. A biologist was so sure that no one would cooperate that he began his phone call by announcing “Okay, Hofstadter, give me the \$19.” A physicist reported that he wanted to cooperate, but said that he could not find any way of justifying it. Another player became so frustrated that he ended up flipping a coin to determine whether to cooperate or defect.⁴ The former author of the *Scientific American* Mathematical Games column, Martin Gardner, recognized that Hofstadter’s game did not fit into modern game theory categories, but this knowledge did not help him decide how to decide rationally:

“Horrible dilemma. I really don’t know what to do about it. If I wanted to maximize my money, I would choose to D and expect that others would also; to maximize satisfaction, I’d choose C, and hope other people would do the same (by the Kantian imperative). I don’t know, though, how one should behave *rationally*. You get into endless regresses: ‘If they all do X, then I should do Y, but then they’ll anticipate that and do Z, and so...’ You get trapped in an endless whirlpool.”⁵

“A Classic Anomaly

Students of philosopher of science Thomas Kuhn may recognize these reactions as typical responses to stimuli that do not fit current theoretical models. In his most famous work, *The Structure of Scientific Revolutions*, Kuhn compared these responses to the reactions of subjects in a 1949 experiment in cognition.⁶ In this experiment, psychologists Jerome Bruner and Leo Postman told their subjects that they were going to test how quickly people could identify playing cards. Unknown to their subjects, some of these cards had the color of the suit reversed. They began flashing these cards quickly, but gradually increased the exposure time. They ended each run after a subject successfully identified two cards in a row. Kuhn wrote of this experiment:

“Even on the shortest exposures many subjects identified most of the cards, and after a small increase all the subjects identified them all. For the normal cards these identifications were usually correct, but the anomalous cards were almost always identified, without apparent hesitation or puzzlement, as normal. The black four of hearts might, for example, be identified as the four of either spades or hearts. Without any awareness of trouble, it was immediately fitted to one of the conceptual categories prepared by prior experience. One would not even like to say that the subjects had seen something different from what they identified. With a further increase of exposure to the anomalous cards, subjects did begin to hesitate and to display awareness of an anomaly. Exposed, for example, to the red six of spades, some would say: That’s the six of spades,

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

but there's something wrong with it — the black has a red border. Further increase of exposure resulted in still more hesitation and confusion until finally, and sometimes quite suddenly, most subjects would produce the correct identification without hesitation. Moreover, after doing this with two or three of the anomalous cards, they would have little further difficulty with the others. A few subjects, however, were never able to make the requisite adjustment of their categories. Even at forty times the average exposure required to recognize normal cards for what they were, more than 10 percent of the anomalous cards were not correctly identified. And the subjects who then failed often experienced acute personal distress. One of them exclaimed: 'I can't make the suit out, whatever it is. It didn't even look like a card that time. I don't know what color it is now or whether it's a spade or a heart. I'm not even sure now what a spade looks like. My God!'"⁷

“To understand why these expert players reacted to Hofstadter’s game as they did, one must understand something of modern game theory. Game theory is the analytical study of strategic situations. To draw conclusions from models of strategic situations, modern game theorists make two sorts of simplifying assumptions. The first is that the situation occurs only once. This temporal assumption yields models that effectively prohibit learning by doing. The second is that the same situation occurs repeatedly either with the same players or with players who are able to learn from the experience of other players. This timeless assumption yields models bounded by circumstance, but not time. In effect, these models are symmetric with respect to time. These two simplifying assumptions divide game theory into temporal and timeless categories.

“Hofstadter created a clever anomaly to current game theory by creating a symmetrical model that prohibits learning. The multiple-player nature of his game creates symmetry. The one-time nature of his game prohibits learning. In doing so, he built a model that does not fit neatly into either the timeless or the temporal categories. It falls between the cracks of game theory. To true believers in game theory, it is not a game theory game. Hence, these true believers dismiss his conclusion that societies in which people compete well by considering symmetry before choosing a strategy, which Hofstadter calls *superrational* societies, will do better than *rational* societies.”⁸

“A Grander Anomaly

Martin Gardner’s inability to think about Hofstadter’s game rationally and Hofstadter’s claim that his game shows the superiority of what he calls superrational societies hint of a far grander anomaly. Considering symmetry in strategic situations does not fit modern models for thinking clearly. It is neither dialectical nor logical.

“The multiple-frame model of pursuing Wisdom addresses this anomaly. Playing games well is a matter of choosing the best frame for what we perceive is the given strategic situation. We best frame this problem by making the problem of framing this problem part of the problem we are trying to solve. This creates an endless loop: How do we choose the best frame? We choose the frame that best helps us decide well. How do we choose the best frame for choosing the best frame? We choose the frame that best helps us decide well. How do we choose the best frame for choosing the best frame for choosing the best frame? We choose the frame that best helps us decide well...”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Regardless of how many times we cycle through this endless loop, the answer is always that we choose the frame that best helps us decide well. From a purely logical view, this gets us nowhere. Each time we cycle through the loop, we end up back at our starting point. However, from the view of the multiple-frame model of pursuing Wisdom, each time we cycle through this loop, we expand the scope of the problem we are seeking to solve. This is consistent with Dwight Eisenhower's maxim, "If a problem cannot be solved, enlarge it." Taking this advice to its logical limit, we end with the problem that contains all other problems. We best address this universal problem by pursuing Wisdom. The problem of pursuing Wisdom is the same for all of us.

"From the view of the multiple-frame model of pursuing Wisdom, the end of competing well is Winning. Pursuing this timeless end well calls for winning over competitors to pursuing Wisdom. As we shall see in the next section, we best do this by increasing the tempo of change. Adapting to an ever-increasing pace of change well calls for pursuing Wisdom."

"² In the late 1970s, Hofstadter wrote a popular book on recursion, *Gödel, Escher, Bach, An Eternal Golden Braid*. At the time he sent out this letter, he was the author of the *Metamagical Themas* column in *Scientific American* magazine. 'Metamagical themas' is an anagram of 'mathematical games,' which was the title of the *Scientific American* column Martin Gardner wrote from 1956 through 1980."

"³ Hofstadter, Douglas *Metamagical Themas, Questing for the Essence of Mind and Pattern* (New York: Basic Books 1985), pp. 740–1."

"⁴ *Ibid.*, pp. 742–3."

"⁵ *Ibid.*"

"⁶ Bruner, J. S. and Postman, L. "On the Perception of Incongruity: A Paradigm," *Journal of Personality*, XVIII (1949), 206-23."

"⁷ Kuhn, Thomas, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1996), pp. 63-4."

"⁸ *Metamagical Themas*, p. 764."

Chapter 7, The Scope of Strategy, new first three paragraphs

"The most important development in strategic thinking in the second half of the twentieth century was the idea of competing well by deciding well ever more quickly. The person most responsible for this idea was a United States Air Force (USAF) fighter pilot named John Boyd.

"The development of Boyd's ideas about competing well by deciding well ever more quickly began with a combat tour as an F-86 Sabre pilot in waning months of the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Korean War. After returning from Korea, he was assigned to Nellis Air Force Base for further instruction. His skills were such that he stayed on as an instructor at the Fighter Weapons School. In the final months of his six years at Nellis, he wrote a manual on aerial combat, which became the handbook for close-in aerial combat tactics in the United States and, after it was declassified, around the world.¹⁰

“In 1961, the USAF offered Boyd a chance to return to college to earn a graduate degree to supplement his undergraduate degree in business and economics from the University of Iowa. He instead decided to earn an undergraduate degree in industrial engineering from George Tech University. While trying to explain what he did as a fighter pilot to a fellow student, Boyd used thermodynamic terms to describe close-in aerial combat. His extended metaphor worked so well that he decided to consider aircraft performance in terms of energy relations. He later worked with mathematician Tom Christie to refine what became known as Energy-Maneuverability (E-M) theory.¹¹”

were changed to:

“The most important development in strategic thinking in the second half of the twentieth century was the idea of competing well by deciding well ever more quickly. The person most responsible for this idea was John Boyd.

“John Boyd was a United States Air Force officer. After a tour as an F-86 Sabre pilot in the closing months of the Korean War, the Air Force assigned Boyd to Nellis Air Force Base for further instruction. His skills were such that he stayed on as an instructor at the Fighter Weapons School for six years. Before leaving this post, he wrote a manual on aerial combat, which became the handbook for close-in tactics around the world. The Air Force then sent him back to college. While studying for an exam in thermodynamics, he had the insight to describe these tactics in terms of energy relations. He later worked with mathematician Tom Christie to refine this idea into what he called Energy-Maneuverability (E-M) theory.¹⁰”

Chapter 7, The Scope of Strategy, last two paragraphs

“E-M theory revolutionized not only the way people think about close-in aerial combat, but also the way people design fighter aircraft. Using E-M theory, Boyd predicted that the then current American fighter planes were inferior to their Soviet counterparts in terms of overall aircraft performance. The acceptance of E-M theory led the USAF to assign him to the F-X program. Boyd believed that the plane the USAF wanted, which was a massive, multipurpose, single-seat, swing-wing fighter, would do very poorly against Soviet fighters. In its place, he recommended a fixed-wing, lightweight fighter optimized for aerial combat. Facing the threat of being forced to purchase the Navy’s swing-wing F-14 Tomcat rather than their swing-wing FX design, the USAF decided to change their F-X design to a smaller, fixed-wing air superiority fighter. This design became the F-15 Eagle.¹²

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Boyd believed that the F-15 **Eagle** was too large and too expensive. With the help of **Pierre Sprey, Everest Riccioni, Chuck Myers, Tom Christie, and other members of what Riccioni called “the fighter mafia,”** Boyd was able to convince enough people within the military industrial complex to **proceed with** developing two lightweight fighter prototypes, the YF-16 and YF-17. **“The fighter mafia” and their allies** were **later** able to force the **USAF** to buy the YF-16. During the development process, the USAF changed the YF-16 from an inexpensive air-superiority fighter into a moderately expensive multirole fighter, the F-16 Fighting Falcon. The Navy eventually purchased a larger and more expensive multirole fighter based on the YF-17 design, the F-18 Hornet.¹³”

were changed to:

“E-M theory revolutionized not only the way people think about aerial combat, but also the way they design fighter aircraft. Using it, Boyd predicted that American fighter planes were inferior to their Soviet counterparts. **This** led the **Air Force** to assign him to a design program for a massive swing-wing fighter. **He predicted that this plane would be a disaster.** In its place, he **proposed** a **lightweight** fixed-wing fighter. **The Air Force** decided to change **their** design to a smaller fixed-wing fighter, **which** became the F-15 Eagle. Boyd believed that the F-15 was both too large and too expensive. With the help of **fellow defense reformers, he** was able to convince enough people within the military industrial complex to develop two lightweight fighter prototypes, the YF-16 and YF-17. **These reformers** were **then** able to force the **Air Force** to buy the YF-16. During the development process, the Air Force changed the YF-16 from an inexpensive air-superiority fighter into a moderately expensive multirole fighter, the F-16 Fighting Falcon. The Navy eventually purchased a larger and more expensive multirole fighter based on the YF-17 design, the F-18 Hornet.¹¹”

Chapter 7, *Temporal OODA Loop Analysis*, all paragraphs

“In 1975, Boyd retired from the **USAF** as a full colonel. He planned to refine his ideas about **aerial** combat and develop his ideas about how and why people learn. **His friend and fellow defense reformer Pierre Sprey** encouraged him to develop his ideas on maneuver warfare. Given his talents as a synthesizer of ideas, Boyd saw how each of these three issues fit into the larger problem of how best to compete well by deciding well ever more quickly.

“Boyd **intuitively** grasped that deciding well was a self-referential, self-similar process based on a decision cycle. Unlike the decision cycle put forth in this work, which concerns the **essential** sequence of finding a problem to solve, solving the problem, and learning from the experience; his **essential** sequence concerns observing the world, orienting oneself in the world, deciding on a course of action, and acting. He called this observe-orient-decide-act decision cycle an *OODA loop*.

“**We can use Boyd’s OODA loop model to solve temporal problems.¹² One such problem is the problem of predicting the performance of fighter planes in close aerial combat. There are cases in which E-M theory fails to predict well. The case that most concerned**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Boyd was the discrepancy between the actual and theoretical results of combat between F-86 pilots and MiG-15 pilots. According to analysis based solely on E-M theory, F-86 pilots should not have been as successful against MiG-15 pilots as they were. Boyd used his OODA loop model to look deeper. He concluded that F-86 pilots were able to overcome the relative deficiencies in their airplanes using tools that allowed them to observe, orient, decide, and act more quickly than their opponents. These tools included bubble canopies for better visibility, g-suits for greater resistance to acceleration, and hydraulic controls for less physically exhausting maneuvering. Unlike American P-38 pilots fighting against Japanese pilots in slower, but more maneuverable fighter planes a decade earlier, F-86 pilots fighting MiG-15 pilots were not limited to a single tactic. This made them appear more unpredictable and threatening to their opponents. It also made it possible to “get inside the decision cycles” of their opponents, where they could remain relatively safe until their opponents made an exploitable mistake.¹³”

were changed to:

“In 1975, Boyd retired from the Air Force as a full colonel. He planned to refine his ideas about combat and develop his ideas about how and why people learn. Fellow defense reformer Pierre Sprey encouraged him to develop his ideas on maneuver warfare. Given his talents as a synthesizer of ideas, Boyd saw how each of these three issues fit into the larger problem of how best to compete well by deciding well ever more quickly.

“Boyd grasped that deciding well was a self-referential, self-similar process based on a decision cycle. Unlike the decision cycle put forth in this work, which concerns the basic sequence of finding a problem to solve, solving the problem, and learning from the experience; his basic sequence concerns observing the world, orienting oneself in the world, deciding on a course of action, and acting. He called this observe-orient-decide-act decision cycle an *OODA loop*.

“According to E-M theory, F-86 pilots should not have been as successful against MiG-15 pilots as they were. Boyd used his OODA loop model to look deeper. He concluded that F-86 pilots were able to overcome the E-M weaknesses of their airplanes by using tools that allowed them to decide faster than their opponents. These tools included bubble canopies, g-suits, and hydraulic controls. Deciding faster allowed F-86 pilots to “get inside the decision cycles” of their rivals, where they could remain relatively safe until their opponents made an exploitable mistake. Further, it gave them more options. Unlike American P-38 pilots fighting against Japanese pilots in slower, but more maneuverable Zero fighter planes a decade earlier, F-86 pilots fighting MiG-15 pilots were not limited to a single tactic. This made them appear more unpredictable and threatening to their opponents.”

Chapter 7, *The Grandest Possible Strategy*, third paragraph

Changed “hearts and minds” to “minds and spirits” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Useful Reasoning, fourth paragraph

Changed “visions within the current frame” to “approximates of these two concepts” in the last sentence.

Chapter 8, Useful Reasoning, last paragraph

Changed “Hence” to “Thus” in the third sentence.

Appendix, *Folding in Processes*, second paragraph

Changed “Hence” to “Thus” in the second sentence.

Appendix, *Folding in Processes*, fourth paragraph

Changed “complexity” to “simplicity” in the first sentence.

Changes in Version 2011.05.26

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, first three paragraphs

“One member of this new category is a model in which we assume that there are no constraints on gathering and using information. Information flows as freely as it does in the modern economic model of perfect competition. In this ideal model, people pursue Wisdom using the multiple-frame model of pursuing Wisdom. Hence, markets tend toward the dynamic equilibrium of zero public entropy rather than the static equilibrium of Pareto optimality. When people pursue Wisdom, markets tend toward Justice.

“In this ideal model, all information, including wisdom, flows freely. What modern economists view as consuming is producing pleasure, joy, and wisdom.

“In this ideal model, people decide perfectly. In deciding perfectly, all people act as if they were a single decider facing a single problem, which is the public problem that contains all other problems.”

were changed to:

“One member of this new category is a model in which we assume that there are no constraints on gathering and using information. Information flows as freely as it does in the modern economic model of perfect competition. However, this information includes not only information about how best to satisfy our wants, but also information about how best to satisfy our needs. In this ideal model, people decide perfectly with respect to all currently available Wisdom. In doing so, all people act as if they were a single

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

decider facing a single problem, which is the public problem that contains all other problems.”

Chapter 5, The Explicit Experiment, second paragraph

Changed “the view of the multiple-frame model of pursuing Wisdom” to “a scientific view” in the fifth sentence.

Changes in Version 2011.05.31

Preface, fifth paragraph

Inserted the following paragraph:

“Over time, we also collectively learn that we can build *multiple-frame* models of deciding well by defining a frame for each of the universal, boundless factors of deciding well that we currently know. We build these frames by defining the universal, boundless factor of deciding well and the means to this factor in terms of each other. We then use this set of (timeless / dialectical) frames to judge whether the problems we are considering trying to solve “ring true” with all that we currently know about deciding well. If a problem ring true, we have found a “beautiful” problem to solve. *We use the concept of beauty to help us choose problems to solve.* After we have found a problem to solve, we use the models that best help us predict what will happen within the bounds of our chosen problem to help us solve it.”

Preface, new sixth paragraph

Changed “deciding well” to “pursuing the timeless end of deciding well” in the first sentence.

Preface, new ninth paragraph

Changed “In doing so, I explain” to “This includes both” in the last sentence.

Preface, new eleventh paragraph

Changed “claims” to “warnings” in the last sentence.

Chapter 1, Ever More Complete Multiple-Frame Models, last paragraph, footnote

“¹⁴ Philosophers of science may find in this **boundless approach to believing well** parallels to W. V. O. Quine’s naturalistic epistemology. A major difference is that the boundless approach embraces the whole of experience. The incompleteness of Quine’s epistemology gave rise to both Jaegwon Kim’s criticism of Quine’s epistemology for

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

not having a normative element and Morton White's argument with Quine over the scope of holistic pragmatism. *The philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of pursuing Wisdom.*"

was moved to the end of the last paragraph of the Natural Reasoning section of the Reasoning Well chapter and changed to:

"^s Philosophers of science may find in this **pursuit** parallels to W. V. O. Quine's naturalistic epistemology. A major difference is that the boundless approach embraces the whole of experience. The incompleteness of Quine's epistemology gave rise to both Jaegwon Kim's criticism of Quine's epistemology for not having a normative element and Morton White's argument with Quine over the scope of holistic pragmatism. *The philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of pursuing Wisdom.*"

Chapter 3, *Public Order*, last paragraph

Changed "**vehicle**" to "**bicycle**" in the last sentence.

Chapter 3, *Zero Public Entropy*, fourth paragraph, third and fourth sentences

"In the cycling example above, **one such blinder is the way we associate "cycling" with "bicycling."** This tends to blind us to ways of replacing knowledge wealth for non-knowledge wealth."

was changed to:

"In the cycling example above, **our concept of 'cycling race'** tends to blind us to ways of replacing knowledge wealth for non-knowledge wealth."

Chapter 7, *A Grander Anomaly*, title

Changed "**Grander**" to "**Greater**" in the title.

Chapter 7, *A Grander Anomaly*, first paragraph

Changed "**grander**" to "**greater**" in the first sentence.

Chapter 7, *Temporal OODA Loop Analysis*, second paragraph, second sentence

"**Unlike the decision cycle put forth is this work, which concerns the basic sequence of finding a problem to solve, solving the problem, and learning from the experience; his basic sequence concerns** observing the world, orienting oneself in the world, deciding on a course of action, and acting."

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“In this decision cycle, we observe the world, orient ourselves in the world, decide on a course of action, and act.¹²”

“¹² To address strategic problems using his inherently tactical model of deciding well, Boyd needed a timeless basis. He chose surviving and thriving on our own terms. This choice tends to blind us to seeking to cooperate well before we seek to compete well.”

Chapter 7, *The Grandest Strategy*, third paragraph, last sentence

Added quotation marks around the quote “attracting the uncommitted, in magnifying their own spirit and strength, and in undermining the dedication and determination of their adversaries.”

Chapter 7, *The Grandest Strategy*, last paragraph, second sentence

Italicized the sentence: “*Adopting this strategy calls for making the national goal pursuing Wisdom.*”

Chapter 8, Useful Reasoning, last paragraph, footnote

Added the sentence: “They may find that quantum mechanics offers deeper insights into the problems of language than early twentieth-century atomic theory offers.”

Changes in Version 2011.06.04

Entire document

Checked hypens, en-dashes and em-dashes.

Preface, second paragraph, second through fourth sentences

“These people confuse the temporal ends of seeking the truth and seeking wisdom with the timeless end of seeking the truth and wisdom. In doing so, they fail to make the best use of what they currently know. To correct this mistake, I propose a timeless model of deciding well:”

were changed to:

“These people confuse the temporal with the timeless. They confuse taking the next step toward seeking the truth based on what they currently know and taking the next step toward seeking wisdom based on what they currently know with seeking the truth and wisdom based on all that anyone can ever know. In doing so, they fail to make the best

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

use of what they currently know. To correct this mistake, I propose a timeless model of deciding well, **a model of deciding well as a process rather than as a single event:**”

Preface, second paragraph, last sentence

“These constraints concern **not only solving temporal problems, but also learning how to solve temporal problems ever better.**”

was changed to:

“These constraints concern **all three steps in the process.**”

Preface, third paragraph

Changed “model **of deciding well**” to “model” in the first sentence.

Changed “boundless factors **of deciding well**” to “boundelss factors” in the second sentence.

Changed “**obvious**” to “**widely known**” in the third sentence.

Preface, fourth paragraph

“**Over time, we also collectively learn that we can** build *multiple-frame* models of **deciding well** by **defining** a frame for each of the universal, boundless factors of deciding well that we **currently** know. We build these frames by defining the universal, boundless factor **of deciding well** and the means to this factor in terms of each other. We then use **this set of (timeless / dialectical)** frames to judge whether the problems we are considering trying to solve “ring true” with all that we currently know about deciding well. If a problem ring true, we have found a “beautiful” problem to solve. *We use the concept of beauty to help us choose problems to solve.* After we have **found** a problem to solve, we use the models that best help us predict what will happen within the bounds of our chosen problem to help us solve it.”

was changed to:

“**We can use this insight into the nature of deciding well to** build *multiple-frame* models **to help us find problems to solve. We build these models by building** a **timeless** frame for each of the universal, boundless factors that we know. We build **each of** these frames by defining the universal, boundless factor and the means to this factor in terms of each other. **After we add what we currently know about the means to these factors, we use these** frames to judge whether the problems we are considering trying to solve “ring true” with all that we currently know about deciding well. If a problem ring true, **then** we have found a “beautiful” problem to solve. After we have **chosen** a problem to solve, we **may** use the models that best help us predict what will happen within the bounds of our chosen problem to help us solve it.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, fifth paragraph

“Students of Western thought may find in this **multiple-frame model of pursuing the timeless end** of deciding well a synthesis of the **Platonic pursuit of ideal forms and the Aristotelian pursuit of natural forms**. Like the **Platonic pursuit**, it involves pursuing knowledge of ideal forms. Unlike **the Platonic pursuit**, it is endless. We shall never see the whole truth by the light of all that is good. Like the **Aristotelian pursuit**, it involves **replicable patterns** of reasoning. Unlike **the Aristotelian pursuit**, it involves not only rules that bind beliefs together into coherent models of the world, but also rules for binding these models together into a coherent whole. The source of the coherence for binding these models together is the symmetry of deciding well.”

was changed to:

“Students of Western thought may find in this **process** of deciding well a synthesis of the **processes by which Plato and Aristotle pursued wisdom**. Like the **process of Plato**, it involves pursuing knowledge of ideal forms. Unlike **this process**, it is endless. We shall never see the whole truth by the light of all that is good. Like the **process of Aristotle**, it involves **rules** of reason. Unlike **this process**, it involves not only rules that bind beliefs together into coherent models of the world, but also rules for binding these models together into a coherent whole. The source of the coherence for binding these models together is the symmetry of deciding well.”

Preface, sixth paragraph

Changed “**discover and use this basic** model” to “use this model” in the first sentence.

Changed “know” to “**currently know**” in the second sentence.

Preface, seventh paragraph

Changed “**virtuous circle**” to “**economic cycle**” in the last sentence.

Preface, eighth paragraph

Changed “**then**” to “**go on to**” in the second sentence.

Preface, eighth paragraph, last sentence

“This includes **both why modern economics leads us to underestimate the probability of great turbulence and why seeking to extend good times by lowering the quality of decisions is as shortsighted as seeking to prevent all forest fires.**”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“This includes why seeking to extend good times by lowering the quality of decisions is as shortsighted as seeking to prevent all forest fires.”

Preface, ninth paragraph

Changed “go on to” to “then” in the second sentence.

Preface, tenth paragraph

Changed “timeless spiritual” to “religious” in the first sentence.

Changed “twin warnings that science without religion is lame and religion without science is blind” to “source of true art and science” in the last sentence.

Preface, twelfth paragraph

Changed “neither dialectical nor logical, but rather a synthesis of both” to “a synthesis of dialectics and logic” in the first sentence.

Changed “who are locked” to “locked” in the last sentence.

Preface, last paragraph

Changed “their lives” to “deciding well” in the last sentence.

Chapter 1, Setting Words Aright, second paragraph

Changed “patterns” to “forms (patterns)” in the first sentence.

Changed “pattern” to “form” in the last two sentences (two occurrences).

Chapter 1, Setting Words Aright, last paragraph

Changed “work” to “book” in the second sentence.

Chapter 1, Choosing Frames Well, first paragraph

Changed “one another” to “each other” in the fourth sentence.

Changed “conceptual structures” to “structures” in the last sentence.

Chapter 1, *The EOQ/RTS Example*, sixth paragraph

Changed “mass producing” to “mass-producing” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed semicolons to commas and removed parenthetical numbers from the fifth sentence.

Chapter 1, *The EOQ/RTS Example*, seventh paragraph, last two sentences

“In short, Ohno’s system swallows and digests complex problems.”

was changed to:

“In swallowing and digesting complex problems, this strategy produces not only good products for sale, but also good products in the form of knowledge of how to produce ever more wisely.”

Chapter 1, *The EOQ/RTS Example*, last paragraph

Changed “Ohno’s strategy for learning” to “it” in the first sentence.

Changed “strategy” to “strategy for learning” in the last sentence.

Moved the footnote:

“^s For more on Ohno’s strategy for learning, see the appendix.”

to the end of the preceding paragraph.

Merged this paragraph with the preceding paragraph.

Chapter 1, Profit, last paragraph, footnote

“^s From the modern liberal view, people owe part of their profits to society for the use of socially-owned resources. According to modern liberals Gar Alperovitz and Lew Daly (*Unjust Deserts: How the Rich Are Taking Our Common Inheritance and Why We Should Take It Back*, New York: The New Press, 2008), people owe up to ninety percent of their incomes to society to pay for the use of knowledge that they use freely. Ought we to pay the debts we owe to the stewards of society in money or to the whole of life in good deeds?”

was changed to:

“^s From the view of modern American liberals Gar Alperovitz and Lew Daly (*Unjust Deserts: How the Rich Are Taking Our Common Inheritance and Why We Should Take It Back*, New York: The New Press, 2008), we owe up to ninety percent of our incomes to our society for the use knowledge that we we freely. In effect, our society owns the rights to all knowledge in the public domain regardless of its source. From this thoroughly socialist view, we ought to pay these debts to the stewards of society in

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

money, rather than to the whole of life in good deeds. **As we shall see, this violation of the sovereign right to pursue Wisdom is a recipe for catastrophe.**”

Chapter 4, Useful Reminders, second paragraph

Changed “boundlessly-pragmatic” to “boundlessly pragmatic” in the second sentence.

Changes in Version 2011.06.08

Chapter 1, Choosing Frames Well, second paragraph

“The frames we use to reduce our sensations to concepts affects how we think about the world. Consider some of the many ways in which we may think about **what it is to decide well**. One way **in which we can think about deciding well** is to think about the way we overcome constraints in pursuit **of** our goals. These constraints include scarcity of such factors as time, clarity of mind, **the quality of intellectual tools**, and material resources. From within this frame, the meaning of the term ‘well’ in the phrase ‘deciding well’ concerns excellence in using resources.”

was changed to:

“The frames we use to reduce our sensations to concepts affects how we think about the world. Consider some of the many ways in which we may think about **deciding well**. One way is to think about the way we overcome constraints in **pursuing our ends (goals)**. These constraints include scarcity of such factors as time, clarity of mind, and material resources. From within this frame, the meaning of the term ‘well’ in the phrase ‘deciding well’ concerns excellence in using resources.”

Chapter 1, Choosing Frames Well, third paragraph, first two sentences

“A second way in which we **can** think about deciding well is to think about the **way in which we cope with the constraints we face**. For example, we may classify the methods we use to decide into what we may call the three D’s: **deliberation (formal decision-making), decision rules (rules of thumb/heuristic methods), and discipline (consciously formed habits)**. **Deliberation** is thorough but costly in time and other resources. **Decision rules** are less thorough but also less costly. **Discipline is** the least thorough, least costly, but most resistant to the harmful effects of deprivation, the lack of those things we need to live well. From within this frame, the meaning of the term ‘well’ in the phrase ‘deciding well’ concerns excellence in matching the method we use to the problem we face.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“A second way in which we **may** think about deciding well is to think about the **method** we **use**. **Do we deliberate, use decision rules, or use discipline?** Deliberating (**deciding formally**) is thorough but costly in time and other resources. **Using decision rules (rules of thumb / heuristic methods)** is less thorough but also less costly. **Using discipline (consciously formed habits)** is the least thorough, least costly, but most resistant to the harmful effects of deprivation, the lack of those things we need to live well. From within this frame, the meaning of the term ‘well’ in the phrase ‘deciding well’ concerns excellence in matching the method we use to the problem we face.”

Chapter 1, Useful Frames, all paragraphs

“Addressing the problem of deciding well holistically calls for understanding what makes frames useful in deciding well. Useful frames are frames that help us achieve our ends. **We may group useful frames into two types based on whether the ends that they address are *temporal* or *timeless*.**⁵ Temporal ends are goals that concern events; timeless ends are goals that concern processes. **Winning a basketball game is a temporal end; playing basketball well is a timeless end. Again, temporal ends concern events; timeless ends concern processes.**

“Temporal and timeless frames differ in their concepts of *excellence in means*. From a temporal frame, excellence in means is excellence in solving problems. **Modern economists** call excellence in solving problems *efficiency*. **From the temporal frame of modern economics, to decide well is to decide efficiently. In contrast, from a timeless frame, excellence in means is excellence both in solving subordinate problems and in choosing subordinate problems to solve. Decision scientists call excellence in solving subordinate problems *efficiency* and excellence in choosing subordinate problems to solve *effectiveness*. From the timeless frame of decision science, to decide well is to decide both efficiently and effectively.**⁶

“**We base the temporal concept of excellence in means on what we know and on what we may learn that is useful for solving the temporal problem we have chosen to solve. In contrast, we base the timeless concept of excellence in means on what we know and what we may learn that is useful in addressing the timeless problem we have chosen to address.**

“**We can see this difference in formal decision-making. From a temporal frame, a formal decision *event* consists of (1) formulating alternatives; (2) evaluating alternatives; (3) choosing an alternative; and (4) implementing the chosen alternative. To decide well is to decide perfectly. In contrast, from a timeless frame, a formal decision *process* is the endlessly repeating cycle of (1) finding a **subordinate** problem to solve that appears to be in line with **the timeless end of the process**; (2) formulating **alternative** solutions to the chosen problem; (3) evaluating these **alternatives**; (4) choosing an **alternative**; (5) implementing the chosen **alternative**; and (6) learning from the experience. To decide well is *not* to decide perfectly. Given our limited knowledge relative to the infinitely large problem we face, we cannot avoid making mistakes. When we make mistakes, we embed new mistakes into, or reinforce existing mistakes in, our networks of knowledge-**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

in-use; that is, into our markets, technologies, legal systems, languages, scientific theories, and cultures. The dot-com bubble, household lead paint, the Versailles Treaty, the concept of wealth as precious metal coins and bullion, the Ptolemaic theory of the solar system, and countless forms of conspicuous consumption spring to mind. We muddle through a tangle of past mistakes. If we are wise, we learn from our mistakes. If we are wise, we learn to muddle forward ever more wisely.”

were changed to:

“Addressing the problem of deciding well holistically calls for understanding what makes frames useful in deciding well. Useful frames are frames that help us achieve our ends. Some ends concern processes. We may call these *timeless ends*.⁵ Playing basketball well is a timeless end. Other ends concern events. We may call these *temporal ends*. Winning a basketball game is a temporal end. In pursuing the timeless end of deciding well, we need frames to help us find problems to solve. We may call these *timeless frames*. We also need frames to help us solve problems that have temporal ends. We may call these *temporal frames*.

“Temporal and timeless frames differ in their concepts of *excellence in means*. From a temporal frame, excellence in means is excellence in solving problems. We may call this *efficiency*. To decide well is to decide efficiently. We base this concept of excellence in means on what we know and on what we may learn *that is useful for solving the temporal problem we have chosen to solve*. A formal decision event consists of formulating alternatives, evaluating alternatives, choosing an alternative, and implementing the chosen alternative. To decide well is to decide perfectly.

“In contrast, from a timeless frame, excellence in means is not only excellence in solving problems, but also excellence in choosing problems to solve. We may call the excellence in choosing problems to solve *effectiveness*.⁶ To decide well is to decide both efficiently and effectively. We base this concept of excellence in means on what we know and what we may learn *that is useful in addressing the timeless problem we have chosen to address*. A formal decision process is the endlessly repeating cycle of (1) finding a temporal problem to solve that appears to be in line with our timeless end, (2) formulating various solutions to this problem, (3) evaluating these solutions, (4) choosing a solution, (5) implementing the chosen solution, and (6) learning from the experience. To decide well is *not* to decide perfectly. Given our limited knowledge relative to the infinitely large problem we face, we cannot avoid making mistakes. When we make mistakes, we embed new mistakes into, or reinforce existing mistakes in, our networks of knowledge-in-use. These networks include our markets, technologies, legal systems, languages, sciences, and cultures. If we are wise, we learn from our mistakes. If we are wise, we learn to muddle forward ever more wisely.”

Chapter 1, *The EOQ/RTS Example*, first five paragraphs

“Modern economists call people who act according to a temporal view of deciding well “rational.” In contrast, decision scientists call people who act according to a timeless

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

view “wise.” We can see the difference between acting “rationally” and acting “wisely” in two models for helping us to decide how often to set up machine tools. The first is the well-known economic order quantity (EOQ) model. The second is the less well-known rapid tool setting (RTS) model.

“Suppose our factory expects to sell 100,000 units of our new model electric car. Each of these cars needs a hood. The machine that makes these hoods also makes other parts. Each time we set up this machine tool it uses resources. Storing hoods and other parts also uses resources. How many hoods should we make at once? At one extreme, we might make one batch of 100,000 hoods. At the other extreme, we might make 100,000 batches of one hood. Between these two extremes lies the most efficient number to make at once. The EOQ model yields the number at which the marginal cost and marginal benefit of ordering one more hood per batch just equal one another. This number maximizes the net benefit of setting up the tool for our current knowledge of how to set up the tool.

“The temporal concept of deciding well inherent in the EOQ model does not allow for learning through experience. This deficiency tends to blind managers using the EOQ model to the possibility of learning. Managers who do not expect their workers to learn do not manage their workers in ways that encourage workers to learn. Until the Toyota practice of rapid tool setting (RTS) became popular, it was common for standard procedures for setting up machine tools to remain unchanged for years, even decades. In contrast, managers practicing RTS promote learning how to set up ever more efficiently through such means as training team members to learn, encouraging team members to share their ideas, and rewarding team members for learning.

“We can model RTS by combining an EOQ model with a mathematical function that relates the expected cost of setting up to the cumulative experience of setting up.² This timeless model disturbs people who like neat solutions. It tells us that we can choose to learn more quickly by setting up more often. Solving this model calls for pricing what we expect to learn. The inexhaustibility of knowledge makes this hard to do. We cannot price useful knowledge by measuring the value of the resources it replaces, except in the special case in which we know exactly when and how we will use the knowledge. Here, we do not know exactly when and how (1) we will use new knowledge of how to set up more quickly; (2) we will use new knowledge of how to learn more quickly; and (3) others will use both types of new knowledge. The possibility of learning turns what otherwise would be a simple closed-ended problem into a complex open-ended one.

“Toyota’s experience with RTS shows us that the wise choice is not always the efficient choice. Toyota was able to cut metal stamping press setup times from several hours to less than ten minutes. Short setup times yield savings in warehouse space, material-handling equipment, material handlers, stock clerks, and other forms of indirect labor. Short setup times also reduce scrap. When team members set up wrongly, they need to scrap fewer parts. Short setup times even enhance learning. It is much easier for team members to remember what they did wrong three hours ago than what they did wrong

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

three weeks ago. With such great advantages, it is not surprising that the **results of RTS** have swept through industry.”

“Engineers and economists **call this mathematical function an expected learning curve.** **They** typically assume that doubling experience drops the cost per unit by some fixed percentage. The greater a team’s ability to learn, the greater this percentage should be.”

were changed to:

“We can see the difference between **temporal and timeless frames** in two models for helping us to decide how often to set up machine tools. The first is the **temporal economic order quantity (EOQ)** model. The second is the **timeless rapid tool setting (RTS)** model.

“Suppose our factory expects to sell 100,000 units of our new electric car. Each of these cars needs a hood. The machine **tool** that makes these **parts** also makes other parts. **Setting up tools** uses resources. Storing parts also uses resources. How many hoods should we make at once? At one extreme, we might make one batch of 100,000 hoods. At the other extreme, we might make 100,000 batches of one hood. Between these two extremes lies the most efficient number to make at once. The EOQ model yields the number at which the marginal cost and marginal benefit of ordering one more hood per batch just equal one another. This number maximizes the net benefit of setting up the **tool for our current knowledge of how to set up the tool.**

“The temporal **frame of the EOQ model includes the assumption that people** do not learn through experience. This **assumption** tends to blind people to the possibility of learning. Managers who do not expect their **people** to learn do not manage **them** in ways that encourage **them** to learn. In contrast, managers practicing **rapid tool setting** promote learning through such means as training **tool-setters** to learn and rewarding **them** for learning.

“We **may** model **rapid tool setting** by combining an EOQ model with an expected learning **curve for setting up the tool.** **The resulting** timeless model disturbs people who like neat solutions. It tells us that we can choose to learn more quickly by setting up more often. Solving this model calls for pricing what we expect to learn. The inexhaustibility of knowledge makes this **very** hard to do. We cannot price useful knowledge by measuring the value of the resources it replaces, except in the special case in which we know exactly when and how we will use the knowledge. Here, we do not know exactly when and how (1) we will use new knowledge of how to set up more quickly; (2) we will use new knowledge of how to learn more quickly; and (3) others will use both types of new knowledge. The possibility of learning turns what otherwise would be a simple closed-ended problem into a complex open-ended one.

“**The benefits of short setup times go far beyond savings in direct labor and capital costs.** Short setup times yield savings in warehouse space, material-handling equipment, material handlers, stock clerks, and other forms of indirect labor. **They** also reduce

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

scrap. When **production** team members set up wrongly, they need to scrap fewer parts. Short setup times even enhance learning. It is much easier for team members to remember what they did wrong three hours ago than what they did wrong three weeks ago. With such great advantages, it is not surprising that the **knowledge of how to set up tools rapidly** has swept through industry.”

“**An expected learning curve is a mathematical function that relates the expected cost of setting up to the cumulative experience of setting up.** Engineers and economist typically assume that doubling experience drops the cost per unit by some fixed percentage. The greater a team’s ability to learn, the greater this percentage should be.”

Chapter 1, *The EOQ/RTS Example*, last two paragraphs

Changed “**RTS**” to “**learning to set up tools rapidly**” and “**part**” to “**role**” in the first sentence of the sixth paragraph.

Deleted “**producing ever more leanly by**” from the sixth sentence.

Changed “**wisely**” to “**efficiently and effectively**” in the fifth sentence of the last paragraph.

Changed “**it**” to “**this strategy**” in the sixth sentence of the last paragraph.

Changed “**RTS**” to “**learning to set up tools rapidly**” and “**strategy for learning**” to “**strategy**” in the last sentence of the last paragraph.

Chapter 1, *The Need for Timeless Frames*, first paragraph, first three sentences

“**Ohno’s strategy for learning calls for all team members to improve their work continually. This in turn calls for good people, humane conditions, cooperation, and a timeless frame of deciding well. A timeless frame for deciding well is confusing to people who are locked into a temporal frame.**”

were changed to:

“**Timeless frames confuse people locked into temporal frames.**”

Chapter 1, *The Need for Timeless Frames*, first paragraph, first bullet point

Changed “**This is because good**” to “**Good**” in the second sentence.

Chapter 1, *Temporal versus Invariant Values*, first paragraph

“**Ohno’s strategy for learning shows us** how we can use the timeless concept of deciding well to help us find better **temporal** problems to solve. We can also use **this concept** to help us find better **timeless** problems to solve. **To understand this, we need to**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

distinguish between the temporal and timeless **concepts of the ideals** that we use to choose problems to solve. **We commonly call these ideals values.**”

was changed to:

“**We have seen** how the timeless concept of deciding well can help us find better **temporal** problems to solve. We can also use **it** to help us find better **timeless** problems to solve. **This calls for distinguishing** between the temporal and timeless **values** that we use to choose problems to solve.”

Chapter 1, Temporal versus Invariant Values, third paragraph, footnote, first sentence

“The change in case from the temporal view third person plural to the timeless view first person plural is not a mistake.”

was changed to:

“**Taking a timeless view of deciding well does not call for us to abandon the study of texts. It only calls for us to interpret texts in light of pursuing Wisdom. Lovers of Wisdom call this study hermeneutics. Note that the change in case from the temporal view third person plural to the timeless view first person plural is not a mistake.**”

Chapter 1, Temporal versus Invariant Values, fifth paragraph

Changed “new **bird**” to “new **species**” in the fifth sentence.

Chapter 1, Temporal versus Invariant Values, sixth paragraph

Changed “**planting** rule” to “rule” in the last sentence.

Chapter 1, Steps for Building Multiple-Frame Models, first paragraph

Changed “**one** another” to “**each** other” in the last sentence.

Chapter 1, Steps for Building Multiple-Frame Models, last paragraph, end

Added the sentence: “**The technique of reducing complex wholes to multiple frames opens more of our ability to recognize patterns to reason, thereby helping us to better integrate these two abilities.**”

Chapter 1, Ever More Complete Multiple-Frame Models, first paragraph, last sentence

“**We then recognize that Wisdom is a boundless factor of the Good.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Changes in Version 2011.06.14

Acknowledgments, second paragraph

Changed “**solve** this infinitely large problem” to “**address** this infinitely large problem **logically**” in the ninth sentence.

Chapter 1, Setting Words Aright, first paragraph

Changed “terms (**containers for meaning**) and concepts (**meanings**)” to “terms and concepts, **between containers for meaning and meanings**” in the first sentence.

Chapter 2, Invariant Tools for Living Well, first paragraph, last two sentences

“In contrast, from the view of the multiple-frame model of pursuing Wisdom, we live well by **using invariant intellectual tools to help us find temporal problems to solve and temporal intellectual tools to help us solve temporal problems. We live well by planning our lives using invariant tools and working our plans using temporal tools.**”

were changed to:

“In contrast, from the view of the multiple-frame model of pursuing Wisdom, we live well by planning our lives using invariant tools and working our plans using temporal tools. **We use invariant tools to find temporal problems to solve and temporal tools to solve these problems.**”

Chapter 2, Invariant Tools for Living Well, second paragraph, end

Added the sentences:

“**In this chapter, the *temporal view* is the temporal view of modern economics. In the remainder of this work, the *multiplex view* is the multiple-frame mental view of pursuing Wisdom.²**”

² The term ‘multiplex view’ comes from biologist Jack Cohen and mathematician Ian Stewart’s book, *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997). Cohen and Stewart describe a recursive evolutionary process that creates the need for ever more complex ways of thinking clearly. What is missing from this Mandevillian work is the symmetry of pursuing Wisdom, hence the convergence of approximate-multiplex mental views toward a transcendental-multiplex mental view, which theists may call “a God’s eye view.” Note that such convergence occurs only when our ability to think clearly about the world

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

progresses faster than the complexity of the world, and that this complexity emerges not only from the symmetry of nature per se, but also from the broken symmetry of nature, which includes the broken symmetry of pursuing Wisdom. Foolishness makes the task of thinking clearly about the world doubly hard.”

Chapter 2, Wealth, first paragraph

“From the temporal **frame of modern economics**, wealth is what people need to live well based on what they currently know. **Wealth concerns** what **we** currently want. From the view **of the multiple-frame model of pursuing Wisdom**, wealth is what we need to live well based on all that we can ever know. **Wealth concerns** what we truly need, **which is resources useful in pursuing Wisdom.**”

was changed to:

“From the temporal **view**, wealth is what people need to live well based on what they currently know; **it is** what **they currently want**. From the **multiplex** view, wealth is what we need to live well based on all that we can ever know; **it is** what we **truly need to pursue Wisdom.**”

Chapter 2, Consumption, first paragraph, first through fifth sentences

“Consuming is the process of using wealth **to live well**. From the temporal **frame of modern economics**, **actions reveal preferences, which is to say that** people never make mistakes. **Thus, winning a fortune in the lottery is always good for people.** From the view **of the multiple-frame model of pursuing Wisdom**, we make mistakes. **Thus, winning a fortune in the lottery can be bad for us.** Understanding this difference calls for a deeper understanding of pleasure and pain.”

were changed to:

“Consuming is the process of **consuming** wealth. **The end of this process is living well.** From the temporal **view**, people never make mistakes; **their actions reveal their preferences; and** winning the lottery **can never be bad.** From the **multiplex** view, we make mistakes; **our actions reveal our characters; and** winning the lottery may be bad **if we have a poor character.** Understanding this difference calls for distinguishing between pleasure and joy.”

Chapter 2, *Pleasure and Pain*, first two paragraphs

“**We can conceive of pleasure and pain as mental signals that help guide us to undertake good activities and avoid bad ones. An activity is good for us when it satisfies our current needs and bad when it diminishes us. Regrettably, pleasure and pain are not perfect indicators of whether an activity is good or bad. Eating food that is bad for us is often pleasurable. The first few minutes of exercise are often painful. Because pleasure**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

and pain are not perfect signals, we cannot rely solely on them to tell us whether an activity is good or bad.

“We can also conceive of two types of pleasure. The first is the pleasure that comes from totally involving or immersing ourselves in activity. Aristotle described this type of pleasure as losing ourselves in activity.² To give us this type of pleasure, an activity must not be too easy or too hard. Activity that does not challenge us is boring. Activity that challenges us too much is overwhelming. Between these extremes is a level that enables us to lose ourselves in activity. We may call this type of pleasure *pleasure-in-acting*. Following this reasoning, we may also call anything that hinders our losing ourselves in activity *pain-in-acting*.”

were changed to:

“Pleasure and pain help us distinguish between acts that help us live well and those that hinder us from living well. Regrettably, cannot rely solely on pleasure and pain to tell us whether an act is good or bad. We often experience pain at the start of healthy exercise. We often experience pleasure when eating unhealthy foods.

“We may distinguish between two types of pleasure and pain. The first type of pleasure comes from totally involving or immersing ourselves in acting. Aristotle described this type of pleasure as losing ourselves in acting.² To yield this type of pleasure, an act must not be too easy or too hard. An act that does not challenge us is boring. An act that challenges us too much is overwhelming. Between these extremes is a level that allows us to lose ourselves in acting. We may call this type of pleasure *pleasure-in-acting*. The first type of pain comes from anything that hinders us from losing ourselves in acting. We may call this type *pain-in-acting*.”

Chapter 2, *Pleasure and Pain*, third paragraph

Changed “our losing ourselves” to “us from losing ourselves” in all (2 occurrences).

Chapter 2, *Pleasure and Pain*, fourth paragraph

Changed “activities” to “acts” in the last sentence.

Chapter 2, *Pleasure and Pain*, sixth paragraph

Changed “simply being” to “being” in the second sentence.

Chapter 2, *Pleasure and Pain*, sixth paragraph, last sentence

“Following this reasoning, we may call the condition that arises from failing to satisfy our needs *pain-in-being*.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The second type of pain is the pain of deprivation, the pain of needs not satisfied. We may call this type *pain-in-being*.”

Chapter 2, *Pleasure and Pain*, eighth paragraph, second sentence

Changed “Joy raises” to “Joyful acts raise” in the second sentence.

Chapter 2, *Tools for Pursuing the Good*, entire section

“Tools for *Pursuing the Good*

Aristotle and Spinoza provide us with different means of living well. Aristotle asks us to look for moral virtue in others. He believed that moral virtue is the habit of wanting the right things, which we develop by acting as if we want the right things. In contrast, Spinoza asks us to look into ourselves. He believed that moral virtue is the ability to address the causes of our emotions rationally, which we develop by learning to understand our needs and the best means of satisfying them.

“Spinoza’s means of living well fits a contemplative life better than an active one. It is easier to identify our needs in a monastery than it is in a trading pit. It is not surprising that aspiring Einsteins prefer Spinoza’s ethics and aspiring Alexanders prefer Aristotle’s.

“A danger of choosing to live the active life is falling into the habit of preferring pleasure to joy. Similarly, a danger in choosing the contemplative life is falling into the habit of preferring joy to pleasure. The Taoist tradition provides us with concepts to help us understand these two problems. From the Taoist view, living well is a matter of balancing *yin* and *yang*. In this context, *yin* is the desire for joy/pleasure-in-being; *yang* is the desire for pleasure/pleasure-in-acting. When we have too much *yang*, we pursue pleasure too much. When we have too much *yin*, we pursue joy too much. When *yin* and *yang* are in balance, we pursue the virtuous circle of pleasure and joy.

“Another danger is failing to consider the choices we make. The Hindu tradition provides us with concepts to help us understand this problem. The Sāṃkhya doctrine of the three *gunas* recognizes that all living things are mixtures of *sattva* (lucidity), *rajas* (passion), and *tamas* (dark inertia). When lucidity prevails, we pursue pleasure and joy; when passion prevails, we pursue pleasure; and when dark inertia prevails, we pursue nothing. People who pursue nothing, who blindly follow their leaders or culture, are the most likely to fall into the vicious cycle of poverty.

“In addition to tools for helping us choose a wise course of action, we also need tools for staying true to the course of action we believe to be wise. In philosophical terms, we need tools to help us be continent. For example, we need tools to help us know when our emotions and appetites overwhelm our faculties, hence when we ought to abandon deliberation for discipline. One solution to this problem is a list of warning signals, Dante’s seven deadly sins: lust, gluttony, greed, sloth, wrath, envy, and pride.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“Tools for Pursuing Pleasure and Joy

Pursuing the virtuous circle of pleasure and joy calls for tools for helping us choose paths forward. From the Indian tradition, the Sāṃkhya doctrine of the three *gunas* recognizes that all living things are mixtures of *sattva* (lucidity), *rajas* (passion), and *tamas* (dark inertia). When lucidity prevails, we pursue pleasure and joy; when passion prevails, we pursue pleasure; and when dark inertia prevails, we pursue nothing. People who pursue nothing, who blindly follow their leaders or culture, are the most likely to fall into the vicious cycle of poverty.

“From the Western tradition, Spinoza and Aristotle provide us with very different means of living well. Spinoza asks us to look into ourselves. He believed that moral virtue is the ability to address the causes of our emotions rationally, which we develop by learning to understand our needs and the best means of satisfying them. His means of living well fits a contemplative life better than an active one. It is easier to know our needs in a monastery than it is in a trading pit. In contrast, Aristotle asks us to look for moral virtue in others. He believed that moral virtue is the habit of wanting the right things, which we develop by acting as if we want the right things. His disciplined means of living well fits an active life better than a contemplative one. Spinoza inspires Einsteins; Aristotle inspires Alexanders.

“In addition to tools for helping us choose wise paths forward, we also need tools for staying true to these paths. A danger of choosing to live the active life is falling into the habit of preferring pleasure to joy. Similarly, a danger in choosing the contemplative life is falling into the habit of preferring joy to pleasure. The Taoist tradition provides us with concepts to help us understand these two problems. From the Taoist view, living well is a matter of balancing *yin* and *yang*. In this context, *yin* is the desire for joy/pleasure-in-being; *yang* is the desire for pleasure/pleasure-in-acting. When we have too much *yang*, we pursue pleasure too much. When we have too much *yin*, we pursue joy too much. When *yin* and *yang* are in balance, we pursue the virtuous circle of pleasure and joy. From the Western tradition, we need tools to help us know when our emotions and appetites overwhelm our faculties, hence to know when we ought to abandon deliberation and decision rules for discipline. One solution to this problem is a list of warning signals, Dante’s seven deadly sins: lust, gluttony, greed, sloth, wrath, envy, and pride.”

Chapter 2, Chicago Screwdrivers, first paragraph, second through ninth sentences

“Just as we ought never to use hammers to drive in screws, we ought never to use variant tools to find problems to solve. One of the greatest dangers of this comes from using tools that either concern or ought to concern consumption to guide our actions. Consider the concepts of human capital, work, and leisure. From the temporal view of modern economics, human capital is knowledge that raises our income; work is an unpleasant activity that others pay people to perform; and leisure is time spent not working. People aim to please themselves by consuming economic goods during their

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

leisure time. **People** work in order to consume. Living well calls for **us** to *balance* work and leisure. In contrast, from the view **of the multiple-frame model of pursuing Wisdom**, human capital is knowledge that helps us to satisfy our needs; work is *any* activity that others pay us to perform; and leisure is time spent satisfying our needs.”

were changed to:

“Just as we ought never to use hammers to drive in screws, we ought never to use **temporal** tools to find problems to solve. One of the greatest dangers of this comes from using **modern economic** tools **to find problems to solve**. Consider the concepts of human capital, work, and leisure. From the temporal view of modern economics, human capital is knowledge that raises our income; work is an *unpleasant* activity that others pay people to perform; and leisure is time spent not working. People aim to *please* themselves by consuming economic goods during their leisure time. **They** work in order to consume. Living well calls for **them** to *balance* work and leisure. In contrast, from the **multiplex** view, human capital is knowledge that helps us to satisfy our needs; work is *any* activity that others pay us to perform; and leisure is time spent satisfying our needs.”

Chapter 2, Trade, second paragraph

“From the temporal **frame of modern economics**, business firms emerge from the high cost of transactions.⁴ In contrast, from the view **of the multiple-frame model of pursuing Wisdom**, the structure of commerce emerges from the high fixed cost of trade relations. **As we learn ever more about trading**, these costs fall; **extraordinary business events become ever more ordinary**; firms become ever less firm; and **commercial entities** larger than firms become ever more prominent. These **larger entities** include both geographical clusters, such as Hollywood and the Silicon Valley, and entire sectors, notably the financial sector.”

was changed to:

“From the temporal **view of modern economics**, business firms emerge from the high cost of transactions.⁴ In contrast, from the **multiplex** view, structures of commerce emerge from the high fixed cost of trade relations. As these costs fall, firms become ever less firm and structures larger than firms become ever more prominent. These **structures** include both geographical clusters, such as Hollywood and the Silicon Valley, and entire sectors, notably the financial sector.”

Chapter 2, Trust, first two paragraphs

“Trade **requires that** trading partners trust one another to fulfill their roles in the trade relation. Trust is the belief that a person or thing will act as expected.

Trust is especially useful in the production and trade of knowledge. Knowledge assets are harder to protect from theft than are non-knowledge assets. Thieves can easily copy

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

many forms of knowledge, which makes them easy to steal. Stealing knowledge does not prevent its owner from using it, which makes the theft of knowledge easier to hide. The legal recourse for stolen knowledge tends to be more expensive than it is for material resources, where evidence of theft is more clear-cut and the legal precedents are better established. **Trust promotes the use of knowledge** by lowering the cost of protecting knowledge.”

was changed to:

“**Trading well calls for trading partners to trust one another** to fulfill their roles in the trade relation. Trust is the belief that a person or thing will act as expected.

“*Trust promotes creating and using knowledge by lowering the cost of protecting knowledge.* Knowledge assets are harder to protect from theft than are non-knowledge assets. Thieves can easily copy many forms of knowledge, which makes them easy to steal. Stealing knowledge does not prevent its owner from using it, which makes the theft of knowledge easier to hide. The legal recourse for stolen knowledge tends to be more expensive than it is for material resources, where evidence of theft is more clear-cut and the precedents are better established. **By lowering the cost of protecting knowledge, trust promotes knowledge.**”

Chapter 2, *Trust*, last paragraph

Changed “**strategic assets**” to “**forms of wealth**” in the first sentence.

Chapter 2, *Three Common Mistakes*, all paragraphs

“Three common mistakes tend to blind us to better means of trade. The first is the belief that we cannot improve the means of trade. This belief led John Maynard Keynes to see the slowness of the price of labor to fall in response to a fall in the demand for labor (“sticky wages”) as a problem to work around rather than a problem to solve. It also led most Western experts to see the Toyota system as a set of techniques rather than as a **means of creating techniques that involve paying workers not only for their skilled hands but also for their trained minds.**

“**The second mistake is the belief that the only knowledge that we need to purchase well is the knowledge of a good’s quality and price. We may also need to know about the conditions of its production. For example, buying teak from a source certified to grow and harvest teak in an environmentally friendly way can help us satisfy our need to be part of something greater than ourselves, and so may be worth more to us than buying otherwise identical teak from an uncertified source.**

“**The third mistake is the belief that competition is the opposite of cooperation. When excellence calls for cooperation, promoting competition tends to promote cooperation. For example, shoppers in the Soviet Union wasted billions of hours standing in lines, many standing in line three times for the same purchase: once to select an item, a second**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

to pay for it, and a third to collect it. In contrast, competition prompted **early twentieth-century American** merchants to invent stores in which shoppers **cooperate with merchants by** collecting the items they want to buy. **Such self-service stores save shoppers time and money.** In recent years, **some** merchants **have taken this a step further by allowing customers to pay for their items in self-checkout lines.**”

were changed to:

“Three common mistakes tend to blind us to better means of trade. The first is the belief that we cannot improve the means of trade. This belief led John Maynard Keynes to see the slowness of the price of labor to fall in response to a fall in the demand for labor (“sticky wages”) as a problem to work around rather than a problem to solve. It also led most Western experts to see the Toyota system as a set of techniques **for producing leanly** rather than as a **strategy for learning how to produce ever more leanly.** These experts could imagine copying techniques for setting up tools rapidly, but not the means of trade for learning to set up tools ever more rapidly.

“The second mistake is the belief that purchasing well calls for knowledge of intrinsic product quality, but not knowledge of its source. This belief leads people to believe that teak is teak regardless of its source. This ignores our need to be part of something greater than ourselves.

“The third mistake is the belief that competition is the opposite of cooperation. **In the long run, competing well calls for cooperating well.** Shoppers in the Soviet Union wasted billions of hours standing in **one** line to select an item, a second to pay for it, and a third to collect it. In contrast, competition **in the United States** prompted merchants to invent **self-service stores, stores** in which shoppers collect the items they want to buy. In recent years, **it has also prompted merchants to invent self-checkout stores, stores in which shoppers register and bag the goods they have collected.** These inventions in the means of trade save shoppers both time and money.”

Chapter 2, Production, first paragraph

“Production is the intended result of producing well. From the temporal frame of **modern economics**, people *do not* intend to learn **from** experience, **thus** production does not include what people learn through experience. **As we saw in the economic order quantity (EOQ) example, producing well does not call for learning-by-doing.** In contrast, from the view of the **multiple-frame model of pursuing Wisdom**, we *do* intend to learn **from** experience, **thus** production includes what we learn **from** experience. **As we saw in the rapid tool setting (RTS) example, producing well calls for learning-by-doing.** In modern economic terms, it calls for pushing back our production-possibility frontiers.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Production is the intended result of producing well. From the temporal view, people *do not* intend to learn **through** experience, **to push back their “production-possibility” frontiers. Thus**, production does not include what people learn through experience. In contrast, from the **multiplex** view, we *do* intend to learn **through** experience, **to push back our “efficiency” frontiers. Thus**, production includes what we learn **through** experience.”

Chapter 2, Taxation, first paragraph

Changed “temporal **frame of modern economics**” to “temporal **view**” in the second sentence.

Chapter 2, Taxation, second paragraph

“From the view **of the multiple-frame model of pursuing Wisdom**, the power to tax is the power to induce the creation and use of **particular** knowledge. Taxing the number of chimneys in houses will induce the creation and use of knowledge of how to live with fewer chimneys. Similarly, taxing the number of animals used in **medical** experiments will induce the creation and use of knowledge of how to **experiment** using fewer animals.”

was merged with the first and changed to:

“From the **multiplex** view, the power to tax is the power to induce the creation and use of knowledge. Taxing the number of chimneys in houses will induce the creation and use of knowledge of how to live with fewer chimneys. Similarly, taxing the number of animals used in experiments will induce the creation and use of knowledge of how to **test** using fewer animals.”

Chapter 2, Profit, all paragraphs

“From the temporal **frame of modern economics**, profit is what remains of a stream of income after people have paid **fair market value** for all the resources they used to produce it. **From** the view **of the multiple-frame model of pursuing Wisdom**, profit is the return on deciding well.

“**From the classical liberal view**, people are free to spend the profits they earn as they please. **In contrast, from the view of the multiple-frame model of pursuing Wisdom**, we owe debts to those people who created the knowledge we use freely, and to the whole of life for providing us with the natural resources we use freely. We pay these debts by pursuing Wisdom.”

“From the view of modern American liberals Gar Alperovitz and Lew Daly (*Unjust Deserts: How the Rich Are Taking Our Common Inheritance and Why We Should Take It Back*, New York: The New Press, 2008), we owe up to ninety percent of our incomes to our society for the use knowledge that we use freely. In effect, our society owns the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

rights to all knowledge in the public domain regardless of its source. From this thoroughly socialist view, we ought to pay these debts to the stewards of society in money, rather than to the whole of life in good deeds. As we shall see, **this violation of the sovereign** right to pursue Wisdom is a recipe for catastrophe.”

were changed to:

“From the temporal view, profit is what remains of a stream of income after people have paid for all the resources they used to produce it. **People are free to spend the profits they earn as they please. From the multiplex** view, profit is the return on deciding well. **We** owe debts to those people who created the knowledge we use freely, and to the whole of life for providing us with the natural resources we use freely. We pay these debts by pursuing Wisdom.”

“From the view of modern American liberals Gar Alperovitz and Lew Daly (*Unjust Deserts: How the Rich Are Taking Our Common Inheritance and Why We Should Take It Back*, New York: The New Press, 2008), we owe up to ninety percent of our incomes to our society for the use knowledge that we use freely. In effect, our society owns the rights to all knowledge in the public domain regardless of its source. From this thoroughly socialist view, we ought to pay these debts to the stewards of society in money rather than to the whole of life in good deeds **paid forward**. As we shall see, **violating our natural** right to pursue Wisdom is a recipe for catastrophe.”

Chapter 2, A Strategy for Learning Well, first paragraph, last two sentences

“**Given the success of this strategy, we ought to learn ever more about good people and good products. To do so well, we need to** pursue Wisdom using the multiple-frame model of pursuing Wisdom.”

were changed to:

“**We** pursue **pursue this virtuous circle well by pursuing** Wisdom using the multiple-frame model of pursuing Wisdom.”

Chapter 3, Pursuing the Ring of Truth, first paragraph, last three sentences

“Accordingly, we define the timeless frame for pursuing Beauty by defining contemplating well and the **timeless end of contemplating well** in terms of **one another**. By itself, this timeless frame is useless. **However, we can** make it useful **in pursuing Wisdom** by making it part of the multiple-frame model of pursuing Wisdom”

were made into a new paragraph and changed to:

“According **to the steps for building multiple-frame models**, we define the timeless frame for pursuing Beauty by defining contemplating well and **Beauty** in terms of **each**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

other. By itself, this timeless frame is useless. We make it useful by making it part of the multiple-frame model of pursuing Wisdom.”

Chapter 3, Pursuing the Ring of Truth, new third paragraph

Changed “not be too simple or too hard” to “be neither too simple nor too hard” in the second and fourth sentences (2 occurrences).

Chapter 3, Pursuing the Ring of Truth, new fourth paragraph

Changed “we contemplate” to “that we contemplate” in the first and second sentences (2 occurrences).

Changed “within the context” to “the multiplex view” in the second sentence.

Changed “living well” to “believing well” in the last sentence.

Chapter 3, Pursuing the Ring of Truth, last paragraph

Changed “In summary, by” to “By” in the first sentence.

Chapter 3, Leaving Behind Modern Explanations, fourth paragraph

Changed “transcendent recursive objects” to “objects” in the second sentence.

Chapter 3, Leaving Behind Modern Explanations, last paragraph

Changed “incomplete” to “partial” in the fourth sentence.

Chapter 3, *Three Approaches to Policy*, first paragraph

Changed “view of the multiple-frame model of pursuing Wisdom” to “multiplex view” in the second sentence.

Deleted the sentence: “If wishes were horses beggars would ride.”

Chapter 3, *Three Approaches to Policy*, fourth paragraph

Changed “view of the multiple-frame model of pursuing Wisdom” to “multiplex view” in the second sentence.

Chapter 3, *Public Order*, first paragraph

Changed “this view” to “engineering view” in the last sentence.

Chapter 3, *Public Order*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “this view” to “**biological** view” in the last sentence.

Chapter 3, *Public Order*, third paragraph

Changed “this view” to “**public** view” in the last sentence.

Chapter 3, *Public Order*, fourth paragraph

Changed “**can**” to “**may**” in the first sentence.

Chapter 3, *Zero Public Entropy*, last paragraph

Changed “**decide well**” to “**pursue Wisdom**” in the third sentence.

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, third paragraph

Changed “the **invariant** view of decision science” to “the view of decision science” in the second sentence.

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, last paragraph

Changed “view of the **multiple-frame model of pursuing Wisdom**” to “**multiplex** view” in the last sentence.

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, first paragraph

Changed “**Wisdom**” to “**knowledge**” in the fourth sentence.

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, second paragraph

Merged this paragraph with the first paragraph.

Deleted the last sentence: “**This is compatible with the decision interpretation of quantum mechanics.**”

Chapter 4, entire chapter

Changed “view of the **multiple-frame model of pursuing Wisdom**” to “**multiplex** view” all (8 occurrences).

Chapter 4, *Refining Everyday Thinking*, last paragraph

Changed “**the** view” to “**a** view” in the first sentence.

Chapter 4, *Metascience*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “choosing **timeless** problems” to “choosing problems” in the first sentence.

Changed “models we use” to “models **that** we use” in the last sentence.

Chapter 4, *Two Types of Ignorance*, first paragraph

Changed “**descriptions of what we need to do in order to rid ourselves of ever more ignorance**” to “**explanations of causation**” in the second sentence.

Chapter 4, *Two Types of Ignorance*, second paragraph

Changed “**the invariant** method” to “**this** method” in the first sentence.

Chapter 4, *Two Types of Ignorance*, last paragraph

Changed “**thus**” to “**hence**” in all (3 occurrences).

Chapter 4, *Refining Deciding Well*, second paragraph

Changed “**temporal** problems” to “problems” in the third sentence.

Chapter 5, entire chapter

Changed “view **of the multiple-frame model of pursuing Wisdom**” to “**multiplex** view” all (7 occurrences).

Chapter 6, entire chapter

Changed “view **of the multiple-frame model of pursuing Wisdom**” to “**multiplex** view” all (2 occurrences).

Chapter 6, *A Common Timeless End*, first paragraph

Changed “**the** materialist view” to “**a** materialist view” in the first sentence.

Changed “**the** dualist view” to “**a** dualist view” in the second sentence.

Changed “both of **these** views” to “both **types** of **multiplex** views” in the fourth sentence.

Chapter 7, entire chapter

Changed “view **of the multiple-frame model of pursuing Wisdom**” to “**multiplex** view” all (2 occurrences).

Chapter 7, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Added the heading “**The Scope of Competing Well.**”

Chapter 7, A Classic Anomaly, first paragraph

Changed “**They**” to “**Bruner and Postman**” in the fifth sentence.

Chapter 7, A Classic Anomaly, second paragraph

Changed “but not time” to “but not **by** time” in the seventh sentence.

Chapter 7, A Classic Anomaly, last paragraph

Changed “the **timeless** or the **temporal**” to “the **temporal** or the **timeless**” in the third sentence.

Chapter 7, A Greater Anomaly, first paragraph

Changed “dialectical **nor logical**” to “**logical nor** dialectical” in the last sentence.

Chapter 7, The Scope of Strategy, second paragraph

Changed “**a** United States Air Force **officer**” to “**an officer in the** United States Air Force” in the first sentence.

Chapter 7, The Scope of Strategy, third paragraph

Changed “**moderately** expensive” to “more expensive” in the second to last sentence.

Changed “**more** expensive” to “**even** more expensive” in the last sentence.

Chapter 7, Timeless OODA Loop Analysis, first paragraph

Changed ““**temporal**” OODA loop model” to “**basic cycle**” in the first sentence.

Chapter 8, entire chapter

Changed “view **of the multiple-frame model of pursuing Wisdom**” to “**multiplex** view” all (2 occurrences).

Chapter 8, Useful Reasoning, first paragraph

Changed “Uncertain predictions hinder” to “**Uncertainty in** predictions hinders” in the second sentence.

Changed “Incomplete explanations hinder” to “**Incompleteness in** explanations hinders” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Useful Reasoning, last paragraph, footnote, last two sentences

“These students may find decision-oriented interpretations of quantum mechanics to be useful in thinking through the problems of existence and consciousness, e.g., whether a carp that glows in the dark can be said to exist if it only exists in the mind of a geneticist who knows how to make fish that glow in the dark. **They may find that quantum mechanics offers deeper insights into the problems of language than early twentieth-century atomic theory offers.**”

were changed to:

“These students may find **that quantum mechanics offers deeper insights into the problems of language than nineteenth-century atomic or biological models offer. For example, they may find** decision-oriented interpretations of quantum mechanics to be useful in thinking through the problems of existence and consciousness, e.g., whether a carp that glows in the dark can be said to exist if it only exists in the mind of a geneticist who knows how to make fish that glow in the dark.”

Chapter 8, Natural Reasoning, last paragraph, footnote

Changed “**boundless approach embraces the whole of experience**” to “**multiplex approach considers the demand as well as the supply side of pursuing the Truth**” in the second sentence.

Appendix A, Producing Ever More Wisely, first paragraph

Changed “**view of the multiple-frame model of pursuing Wisdom**” to “**multiplex view**” in the first sentence.

Appendix A, Less is More, last paragraph

“**There is a deeper “less is more” story here. It is that ever leaner production leads to ever more complexity in our networks of knowledge-in-use. Just as the motions of a loom weave yarn into cloth, folding and smoothing parts of the line weave knowledge into networks of knowledge-in-use. Regrettably, we do not yet have the concepts we need to think clearly about the structure and dynamics of these networks, which span our nervous systems, our symbolic systems, our organizational systems, and our technological systems. Understanding these networks ought to become as important to people who study people as understanding dark energy and dark matter has become to people who study physics.**”

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Setting Words Aright, fourth paragraph

Changed “to decide well when to decide well is to decide ever more wisely” to “to decide ever more wisely” in the last sentence.

Chapter 2, *Tools for Pursuing Pleasure and Joy*, first paragraph

Changed “helping us choose” to “helping us to choose” in the first sentence.

Chapter 2, Trade, second paragraph

“*Trust promotes creating and using knowledge by lowering the cost of protecting knowledge.* Knowledge assets are harder to protect from theft than are non-knowledge assets. Thieves can easily copy many forms of knowledge, which makes them easy to steal. Stealing knowledge does not prevent its owner from using it, which makes the theft of knowledge easier to hide. The legal recourse for stolen knowledge tends to be more expensive than it is for material resources, where evidence of theft is more clear-cut and the precedents are better established. By lowering the cost of protecting knowledge, trust promotes knowledge.”

was changed to:

“**Trust promotes creating and using knowledge.** Knowledge assets are harder to protect from theft than are non-knowledge assets. Thieves can easily copy many forms of knowledge, which makes them easy to steal. Stealing knowledge does not prevent its owner from using it, which makes the theft of knowledge easier to hide. The legal recourse for stolen knowledge tends to be more expensive than it is for material resources, where evidence of theft is more clear-cut and the precedents are better established. By lowering the cost of protecting knowledge, trust promotes **creating and using** knowledge.”

Chapter 3, Pursuing the Ring of Truth, second paragraph

Changed “the steps” to “our model” in the first sentence.

Chapter 3, Pursuing the Ring of Truth, last three paragraphs

“Consider how **we can use this timeless frame and the invariant concepts of pleasure and joy to define a concept of beauty that is useful in pursuing** Wisdom. To yield pleasure, an activity must be neither too easy nor too hard. Too easy an activity bores us; too hard an activity overwhelms us. When the activity is contemplating, the object we contemplate must be neither too simple nor too hard to contemplate. **Contemplating too simple an object bores us; contemplating too hard an object overwhelms us.** Between these two extremes is a level of difficulty that allows us to lose ourselves in contemplating. As we learn more, objects that once were too hard may yield pleasure; objects that once yielded pleasure may become boring. Learning about classical music

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

may turn Beethoven's symphonies from being overwhelming to being beautiful; it may also change simpler music from being beautiful to being boring.

“To yield joy, an activity must improve our state of being. When the activity is contemplating, the object that we contemplate must be able to improve **our state of being**. From the multiplex view of the multiple-frame model of pursuing Wisdom, the object we that contemplate must be able to improve how well our beliefs fit together into a coherent whole that **we find** useful in pursuing Wisdom. For **us to be able to learn something useful in pursuing Wisdom from it**, it must be just novel enough for us to be able to learn from it. If it is too familiar or too novel, we will not be able to learn from it. As we learn more, objects that once were too novel may become just novel enough to yield joy and objects that were just novel enough may become too familiar to yield joy. Before we learn calculus, Newton's theory of gravity is too novel to yield joy. After we learn calculus, it may yield joy. With use, it becomes just another tool for believing well.

“By **putting the timeless frame of pursuing Beauty into the multiple-frame model of pursuing Wisdom**, we learn that beauty is the quality of objects whose contemplation yields not only the pleasure that comes from losing ourselves in contemplating, but also the joy that comes from contemplating well. Beauty is the quality of objects whose contemplation yields not only pleasure, but also the joy of becoming wiser.”

were changed to:

“Consider how **combining the frames for contemplating and living well helps us** pursue Wisdom. To yield pleasure, an activity must be neither too easy nor too hard. Too easy an activity bores us; too hard an activity overwhelms us. When the activity is contemplating, the object we contemplate must be neither too simple nor too hard to contemplate. Between these two extremes is a level of difficulty that allows us to lose ourselves in contemplating. As we learn more, objects that once were too hard may yield pleasure; objects that once yielded pleasure may become boring. Learning about classical music may turn Beethoven's symphonies from being overwhelming to being beautiful; it may also change simpler music from being beautiful to being boring.

“To yield joy, an activity must improve our state of being. When the activity is contemplating, the object that we contemplate must be able to improve how well our beliefs fit together into a coherent whole that **is** useful in pursuing Wisdom. For **this**, it must be just novel enough for us to be able to learn from it. If it is too familiar or too novel, we will not be able to learn from it. As we learn more, objects that once were too novel may become just novel enough to yield joy and objects that were just novel enough may become too familiar to yield joy. Before we learn calculus, Newton's theory of gravity is too novel to yield joy. After we learn calculus, it may yield joy. With use, it becomes just another tool for believing well.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“By combining the frames for contemplating and living well, we learn that beauty is the quality of objects whose contemplation yields not only pleasure, but also the joy of becoming wiser.”

Chapter 3, *Public Order*, last three paragraphs

“A team taking a biological approach would invent rules for overcoming constraints. For example, they would develop rules for drafting behind one another. Over time, they would invent ever better rules for governing their behavior. An accomplished team taking this approach would resemble a school of fish or a flock of birds.

“A team taking the public approach would distinguish between the tactical end of cycling well based on what they currently know and the strategic end of deciding well. In addressing the tactical problem, the team would choose to make the best use of current resources in addressing the problem of cycling well. In the short run, an accomplished team taking this approach would resemble teams taking engineering or biological approaches.

“In addressing the strategic problem, the team would seek ever better means of replacing non-knowledge resources useful in deciding well with knowledge resources useful in deciding well. Hence, it would consider technological as well as organizational changes. One such change would be the combination of regenerative braking and boosting motors. This combination would allow cyclists to store otherwise wasted energy from cycling downhill to use when cycling uphill. Another such change would be a networked steering control system similar to experimental automated highway control systems that allow cars to travel bumper-to-bumper at high speeds. Such a system would execute tactical moves much more quickly and precisely than people can execute them. The combination of regenerative braking, boosting motors, and automated steering would quickly lead to the development of a means of transferring power from one bicycle to another. This change would eliminate the need to rotate team members from tiring positions to less tiring positions. It would also allow the team to reduce wind resistance by putting cyclists who ride taller than others near the center of the pack. In the long run, an accomplished team taking the public approach would resemble a liquid that undergoes phase changes as it becomes ever more fluid.”

were changed to:

“A team taking a biological approach would invent ever better rules for overcoming constraints through their experiences and the experiences of others. For example, team members would develop rules for drafting behind one another. An accomplished team taking this approach would resemble a school of fish or a flock of birds.

“A team taking the public approach would distinguish between the tactical end of cycling well based on what they currently know and the strategic end of deciding well. In addressing the tactical problem, the team would choose to make the best use of current resources in addressing the problem of cycling well. In addressing the strategic

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

problem, **it** would seek ever better means of replacing non-knowledge resources useful in deciding well with knowledge resources useful in deciding well. Hence, it would consider technological as well as organizational changes. One such change would be the combination of regenerative braking and boosting motors. This combination would allow cyclists to store otherwise wasted energy from cycling downhill to use when cycling uphill. Another such change would be a networked steering control system similar to experimental automated highway control systems that allow cars to travel bumper-to-bumper at high speeds. Such a system would execute tactical moves much more quickly and precisely than people can execute them. The combination of regenerative braking, boosting motors, and automated steering would quickly lead to the development of a means of transferring power from one bicycle to another. This change would eliminate the need to rotate team members from tiring positions to less tiring positions. It would also allow the team to reduce wind resistance by putting cyclists who ride taller than others near the center of the pack. **An** accomplished team taking this approach would resemble a liquid that undergoes phase changes as it becomes ever more fluid.”

Chapter 4, Refining Deciding Well, first paragraph, first two sentences

“The invariant concept of science described above calls for us to refine **our beliefs about deciding well. This in turn calls for us to refine** the models we use to help us predict how people will decide and the models we use to explain deciding well.”

were changed to:

“ The invariant concept of science described above calls for us to refine the models we use to help us predict how people will decide and those we use to explain deciding well.”

Chapter 4, Refining Deciding Well, fifth paragraph, last sentence

“Deciding well calls for us to learn; **it calls for us** to leave the caves of our ancestral clans.”

was changed to:

“ Deciding well calls for us to learn, to leave the caves of our ancestral clans.”

Chapter 4, *Learning from Experience*, second paragraph

“**Many** other trading problems that give rise to uneven flow **have yet to be discovered and solved.**”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We have yet to discover and solve many other trading problems that give rise to uneven flow.”

Chapter 4, *A Crude Look at the Whole*, last paragraph

Changed “remainder is frozen in” to “rest we embed into” in the last sentence.

Removed quotation marks from “frozen” in the last sentence.

Chapter 5, *Promote Savings for Welfare*, last paragraph

“Policymakers might combine (1) a government-run safety-net program; (2) a highly progressive consumption tax system; and (3) a consumption tax-exempt universal welfare savings account program. The safety-net program would ensure that all of us have what we need to pursue Wisdom. The government would tax all income as consumption. The universal welfare savings account would allow tax-free withdrawals for qualified medical, education, and hardship-related expenses for the owners of the account and their dependants. They would also include unlimited giving to private charities.¹⁶ It would treat all other withdrawals as consumption. The haves as well as the have-nots ought to pursue Wisdom.¹⁷”

“¹⁶ Ideally, private charities would drive the government out of the welfare business. The government safety-net program, like a militia, would remain available for emergencies.”

“¹⁷ From the view of modern economics, our interest in how others choose to live is external to the problem of how best to allocate scarce resources. The modern economic solution to this externality problem involves making all information about how we choose to live our lives knowable to all. Compared to the loss of all privacy, the universal welfare savings plan and highly progressive taxation solution does not look so onerous. From the multiplex view, the natural distribution of income of people deciding well is likely to follow an inverse power law. If so, policies for redistributing income will hinder pursuing Wisdom. Far better are policies for promoting pursuing Wisdom.”

was merged into the preceding paragraph and changed to:

“How can they promote a culture of Wisdom? They might create a *universal welfare savings account program*, a savings account program that allowed unlimited tax-free savings and tax-free withdrawals for medical, education, charitable, and hardship-related expenses. To this, they might add a safety net program to ensure that the have-nots have the material resources that they need to pursue Wisdom. They might also add a highly progressive income tax to ensure that the haves have the incentives they need to pursue Wisdom.¹⁶ This combination of policies would create a thriving non-profit sector dedicated to helping people pursue Wisdom.¹⁷”

“¹⁶ From the view of modern economics, our interest in how others choose to live is external to the problem of how best to allocate scarce resources. The modern economic

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

solution to this externality problem involves making all information about how we choose to live our lives knowable to all. Compared to the loss of all privacy, the universal welfare savings plan and highly progressive taxation solution does not look so onerous. From the multiplex view, the natural distribution of income of people deciding well is likely to follow an inverse power law. If so, policies for redistributing income will hinder deciding well. Far better are policies for ensuring that people have incentives to decide well.

¹⁷ Ideally, private charities would drive the government out of the welfare business. The government safety-net program, like a militia, would remain available for emergencies.”

Appendix A, *A Crude Look at the Whole*, last paragraph

Changed “are so greatly folded in” to “they so greatly fold in” in the second to last sentence.

Changed “are barely folded in” to “they barely fold in” in the last sentence.

Appendix A, *Less is More*, last paragraph

“There is a deeper “less is more” story here. It is that ever leaner production leads to ever more complexity in our networks of knowledge-in-use. Just as the motions of a loom weave yarn into cloth, folding and smoothing parts of the line weave knowledge into networks of knowledge-in-use. Regrettably, we do not yet have the concepts we need to think clearly about the structure and dynamics of these networks, which span our nervous systems, our symbolic systems, our organizational systems, and our technological systems. Understanding these networks ought to become as important to people who study people as understanding dark energy and dark matter has become to people who study physics.”

was returned as a footnote rather than the last paragraph.

Changes in Version 2011.06.24

Acknowledgments, second paragraph

Changed “infinitely large problem” to “problem” in the tenth sentence.

Deleted the sixth sentence: “He also introduced me to Thomas Kuhn’s philosophy of science.”

Preface, first paragraph

Changed “a method” to “an empirical method” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, second paragraph

Changed “process” to “decision cycle” in the last sentence.

Preface, fourth paragraph

Changed “may use” to “use” in the last sentence.

Preface, fifth paragraph

Changed “process of deciding well” to “recursive process” in the first sentence.

Chapter 1, Setting Words Aright, first paragraph

Changed “ends” to “ends (goals)” in the first sentence.

Chapter 1, Choosing Frames Well, second paragraph

Changed “ends (goals)” to “ends” in the third sentence.

Chapter 1, *The Need for Timeless Frames*, last paragraph

Changed “the frame of modern decision science” to “a temporal frame of deciding well” in the first sentence.

Chapter 1, Temporal versus Invariant Values, fourth paragraph, footnote

“¹⁰Taking a timeless view of deciding well does not call for us to abandon the study of texts. It only calls for us to interpret texts in the light of pursuing Wisdom. Lovers of Wisdom call this study *hermeneutics*. Note that the change in case from the temporal view third person plural to the timeless view first person plural is not a mistake. As we shall see, we cannot separate the timeless problems we face from the timeless problems all other people face.”

was changed to:

“¹⁰ Note that taking a timeless view of deciding well does not call for us to abandon the study of texts. It only calls for us to interpret texts in the light of pursuing Wisdom. Note too that the change in case from the temporal view third person plural to the timeless view first person plural is not a mistake. As we shall see, we cannot separate the timeless problems we face from the timeless problems all other people face.”

Chapter 1, Temporal versus Invariant Values, seventh paragraph

Changed “infinitely large problem” to “problem” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Temporal versus Invariant Values, last paragraph

Italicized “*does not*” to in the first sentence.

Italicized “*does*” to in the second sentence.

Chapter 1, Steps for Building Multiple-Frame Models, fourth paragraph

Changed “The addition of” to “Adding” in the first sentence.

Chapter 1, Steps for Building Multiple-Frame Models, last paragraph

Changed “to better integrate” to “better integrate” in the last sentence.

Chapter 1, Ever More Complete Multiple-Frame Models, last paragraph

Changed “to form and judge decision-rules, or to form and judge habits” to “use decision-rules, or use discipline” in the second sentence.

Changed “creating knowledge through failure” to “learning by doing” in the last sentence.

Chapter 2, Invariant Tools for Living Well, last paragraph

Changed “this chapter” to “the rest of this chapter” and “the temporal view” to “the temporal view” in the third sentence.

Changed “the remainder of this work” to “the rest of this work” and “the multiplex view” to “the multiplex view” in the last sentence.

Changed “theists may call “a God's eye view”” to “monotheists may call a God's eye view” in the third sentence of the footnote.

Chapter 6, Einstein's Twin Warnings, last paragraph

Added the sentence:

“Note that what Einstein calls science is modern science, not invariant science.”

Chapter 7, The Scope of Competing Well, first paragraph, last two sentences

“Because none of us is perfectly wise, we not only disagree about these beliefs, but also about beliefs of all kinds. To settle these disagreements ever more wisely, we need a recursive process that concerns how to settle disagreements ever more wisely. We may call this recursive process *competing well* and the timeless end of this process *Winning*.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“Because none of us is perfectly wise, we not only **dispute** these beliefs, but also beliefs of all kinds. We may call **the process of settling disputes ever more wisely** *competing well* and the timeless end of this process *Winning*.”

Chapter 7, The Scope of Strategy, last paragraph

Changed “F-18” to “F/A-18” in the last sentence.

Chapter 7, *The Grandest Possible Strategy*, last paragraph, last two sentences

“*Adopting this strategy calls for making the national goal pursuing Wisdom. In the words of Abraham Lincoln, “Let us have faith that right makes might, and in that faith, let us, to the end, dare to do our duty as we understand it.”*”¹⁷”

“¹⁷ **This public profession was the culmination of Lincoln’s address** at The Cooper Union for the Advancement of Science and Art (**New York City, 27 Feb. 1860**).”

were changed to:

“**This strategy calls for making our national goal pursuing Wisdom; for making our sovereign rights story the story of pursuing Wisdom; and for keeping Lincoln’s faith that right makes might.**”¹⁷”

“¹⁷ **In the words of Abraham Lincoln** at The Cooper Union for the Advancement of Science and Art **on February 27, 1860**, “**Let us have faith that right makes might, and in that faith, let us, to the end, dare to do our duty as we understand it.**””

Chapter 8, Useful Reasoning, second paragraph

Changed “**the rules**” to “*the rules*” in the last sentence.

Chapter 8, Useful Reasoning, third paragraph

Changed “**the rules**” to “*the rules*” in the last sentence.

Chapter 8, Useful Reasoning, last paragraph

Changed “**the rules**” to “*the rules*” in the last sentence.

Chapter 8, Useful Reasoning, last paragraph, footnote

Changed “everyday thinking” to “**modern** everyday thinking” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2011.06.28

The following changes were prompted by an edit of the 14 June 2011 version by Sally Osborn. Some punctuation changes in footnotes are not included.

Acknowledgments, fourth paragraph

Changed “learning” to “learning **itself**” in the last sentence.

Preface, third paragraph

Changed “the better we decide the more tightly” to “the better we decide, the more tightly” in the all (2 occurrences).

Preface, fourth paragraph

Changed “**build**” to “**construct**” and “**that** we know” to “we know” in the second sentence.

Changed “ring” to “**rings**” in the fifth sentence.

Changed “**After we have chosen a problem to solve, we use**” to “**We then use**” in the last sentence.

Preface, tenth paragraph

Changed “**that** we use” to “we use” in the first sentence.

Chapter 1, Setting Words Aright, fourth paragraph

Changed “**99**” to “**9**” in the first footnote.

Italicized “***Journal of Personality***” in the second footnote.

Chapter 1, Choosing Frames Well, second paragraph

Changed “**affects**” to “affect” in the first sentence.

Chapter 1, Choosing Frames Well, third paragraph

Changed “to deliberate, **use** decision rules, or **use** discipline” to “**use** deliberation, decision rules, or discipline” in the first sentence.

Chapter 1, Choosing Frames Well, last paragraph, last six sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“To choose this frame, we must choose a frame. To choose this frame, we must choose a frame. And so on to infinity. We cannot solve this infinitely large problem. However, we can address it by making it part of the problem of deciding well. **In other words, we can address the problem of choosing frames well and the problem of deciding well holistically.**”

were changed to:

“To choose this frame, we must choose a frame **from within which to choose**. To choose this frame, we must choose a frame **from within which to choose**. And so on to infinity. We cannot solve this infinitely large problem. However, we can address it by making it part of the problem of deciding well.”

Chapter 1, Choosing Frames Well, first paragraph

Changed “deciding well **holistically**” to “**choosing frames well by** deciding well” in the first sentence.

Chapter 1, *The EOQ/RTS Example*, sixth paragraph

Changed “**that** American firms **did**” to “**as** American firms” in the fourth sentence.

Chapter 1, *The EOQ/RTS Example*, last paragraph, footnote

Changed “**a**ppendix” to “**A**ppendix” in the first sentence.

Chapter 1, *The Need for Timeless Frames*, first paragraph

Changed “people locked” back to “people **who are** locked” in the first sentence.

Chapter 1, Temporal versus Invariant Values, sixth paragraph, fifth through seventh sentences

“Confronted with **the new condition of having something other than “liquid water that falls from the sky” make the ground wet**, the villagers face a choice. **Do** they continue to use ‘rain’ to denote “the source of water that makes the ground wet”? **Or do** they choose to use ‘rain’ to denote “liquid water that falls from the sky”?”

were changed to:

“Confronted with a new **cause of wet** ground, the villagers face a choice. **They may choose to** continue to use ‘rain’ to denote “the source of water that makes the ground wet.” **Alternatively**, they **may** choose to use ‘rain’ to denote “liquid water that falls from the sky.””

Chapter 1, *Ever More Complete Multiple-Frame Models*, fifth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “to what end” to “what end” in the sixth sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph

Deleted the sentence: “**This is true whether we use it to deliberate, use decision-rules, or use discipline.**”

Added the sentence: “**Like the Toyota system, it helps us break down overwhelmingly complex problems into problems we can solve.**”

Chapter 2, *Pleasure and Pain*, first paragraph

Changed “cannot” to “**we** cannot” in the second sentence.

Chapter 2, *Trade*, second paragraph

Changed “**Hollywood and** the Silicon Valley” to “the Silicon Valley” in the last sentence.

Chapter 2, *Profit*, first paragraph, footnote

Changed “use knowledge” to “use **of** knowledge” in the first sentence.

Chapter 3, *Public Order*, second paragraph

Changed “From biological view” to “From **the** biological view” in the last sentence.

Chapter 3, *Public Order*, fifth paragraph

Changed “problem” to “**the** problem” in the second sentence.

Chapter 3, *Zero Public Entropy*, third paragraph

Changed “**studying**” to “**contemplating**” in the first sentence.

Changed “signal that is” to “signal that **it** is” in the sixth sentence.

Changed “**appendix**” to “**Appendix**” in the first sentence of the footnote.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, first paragraph

Changed “**studying**” to “**contemplating**” in the first sentence.

Changed “studying” to “**thinking about**” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, second paragraph

Changed “common sense beliefs” to “common-sense beliefs” in the fourth sentence.

Chapter 3, *The Elephant in the Room*, first paragraph

Changed “multiple-frame model of pursuing Wisdom” to “multiple-frame model” in the first sentence.

Chapter 3, *The Elephant in the Room*, last paragraph

Changed “to solve the essential process” to “to solve, the essential process” in the second sentence.

Chapter 4, *The Elephant in the Room*, fourth paragraph

Changed “as people” to “as people,” in the fourth sentence.

Changed “descendents” to “descendants” in the last sentence of the first footnote.

Chapter 4, *A Crude Look at the Whole*, first paragraph, last footnote

Changed “is” to “are” in the first sentence.

Changed “may quickly be followed by” to “may follow” in the fourth sentence.

Changed “a political turbulence in the form of a revolution or war” to “a war” in the fifth sentence.

Changed “Benoit” to “Benoît” in the last sentence.

Chapter 5, *Good Policies*, first paragraph, footnote

Changed “530” to “30” in the last sentence.

Chapter 5, *Promote pursuing Wisdom, not Temporal Order*, second paragraph, last sentence

“These mistakes include such things as financial products that look good in the short run but are likely to fail in the long run; the proliferation of models for pricing financial assets that presume periods of great turbulence are rare; and a regulatory environment that favors the temporal values of economic growth and stability over Wisdom, hence over the Good, the Truth, Justice, Wholeness, and all of the other boundless factors of pursuing Wisdom.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“These mistakes include such things as financial products that look good in the short run but are likely to fail in the long run; the proliferation of models for pricing financial assets that presume **that** periods of great turbulence are rare; and a regulatory environment that favors the temporal values of economic growth and stability over **the invariant value of Wisdom**, hence over **the invariant values of the Good, the Truth, Justice, Wholeness, and all of the other boundless factors of pursuing Wisdom.**”

Chapter 5, Liberalism, second paragraph

Changed “American” to “**modern American**” in the first sentence.

Chapter 5, Liberalism, third paragraph

Changed “debts **that** we owe” to “debts we owe” in the second sentence.

Chapter 6, *Worldly Benefits of Detachment*, last paragraph

Changed “**to** conceive” to “conceive” in the last sentence.

Chapter 6, Experiencing the Mysterious, first paragraph, footnote

Changed “**194**” to “4” in the first sentence.

Chapter 6, *Einstein’s Twin Warnings*, last paragraph

Changed “twin warnings,” to “twin warnings:” in the last sentence.

Chapter 7, The Scope of Game Theory, first paragraph, fifth and sixth sentences

“If eleven people cooperate and nine people defect; then the cooperators **will** each get \$30 ($10 \times \$3 + 9 \times \0) and the defectors **will** each get \$63 ($11 \times \$5 + 8 \times \1). He told them that defectors would always receive at least as much money as everyone else (hence would never be a “loser”), but that they should aim at getting as much money as possible rather than **to** be a “winner.””

were changed to:

“If eleven people cooperated **d** and nine people defected **d**; then the cooperators **would** each get \$30 ($10 \times \$3 + 9 \times \0) and the defectors **would** each get \$63 ($11 \times \$5 + 8 \times \1). He told them that defectors would always receive at least as much money as everyone else (hence would never be a “loser”), but that they should aim at getting as much money as possible rather than **being** a “winner.””

Chapter 7, The Scope of Game Theory, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “were six people” to “were **that** six people” in the first sentence.

Chapter 7, The Scope of Game Theory, fourth paragraph

Changed “by announcing” to “by announcing:” in the third sentence.

Chapter 7, A Classic Anomaly, second paragraph

Deleted “**either with the same players or with players who are able to learn from the experience of other players**” from the sixth sentence.

Chapter 7, A Greater Anomaly, first paragraph

Changed “hint **of**” to “hint **at**” in the first sentence.

Chapter 7, A Greater Anomaly, second paragraph

Changed “maxim,” to “maxim:” in the fourteenth sentence.

Chapter 7, The Scope of Strategy, third paragraph

Changed “**their** design” to “**its** design” in the sixth sentence.

Chapter 7, Temporal OODA Loop Analysis, first paragraph

Changed “fit” to “**fitted**” in the last sentence.

Chapter 7, Boyd’s Grand Strategy, first paragraph, second footnote

Changed “recursive process” to “**a** recursive process” in the last sentence.

Chapter 8, Natural Reasoning, first paragraph

Changed “win-win” to “win–win” in the second sentence.

Changed “best use knowledge” to “best use **of** knowledge” in the fourth sentence.

Chapter 8, Natural Reasoning, second paragraph, footnote

Changed “Benoit” to “Beno**î**t” in the second sentence.

Appendix, Folding in Processes, fourth paragraph

Changed “greater the relative benefits of folding in **are**” to “greater **are** the relative benefits of folding in” in the seventh sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2011.06.30

Preface, second to last paragraph, end

Added the sentence:

“Deciding well quickens the pace of change, which increases the need for deciding well.”

Chapter 1, Choosing Frames Well, first paragraph

Changed “structures” to “**useful** structures” in the last sentence.

Chapter 1, *The EOQ/RTS Example*, last paragraph

Changed “*good products*” to “*products*” in the fifth sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, fourth paragraph, last three sentences

“The better we pursue Wisdom and pursue the Truth, the more tightly **the pursuits of Wisdom and the Truth** intertwine. If we pursued both of these timeless ends perfectly, **the pursuit of the Truth and the pursuit of Wisdom** would be the same pursuit. Because we do not pursue **these timeless ends** perfectly, it useful for us to think of them as separate pursuits, each subject to its own set of problems. Because we **do not pursue these timeless ends perfectly**, it useful for us to think of **them** as separate pursuits, each subject to its own set of problems.”

was made into a new paragraph and changed to:

“The better we pursue Wisdom and pursue the Truth, the more tightly **these two** pursuits intertwine. If we pursued both of these timeless ends perfectly, **they** would be the same pursuit. **Regrettably, we lack the knowledge to pursue them perfectly. This includes the knowledge of how to think clearly across frames.** Because we **lack the knowledge of how to think clearly across frames**, it useful for us to think of **pursuing Wisdom and the Truth** as separate pursuits, each subject to its own set of problems.”

Chapter 1, *Steps for Building Multiple-Frame Models*, last paragraph

“The technique of reducing complex wholes to multiple frames opens more of our ability to recognize patterns to reason, thereby helping us better integrate these two abilities.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“It allows us to think about complex phenomena more clearly.”¹²”

“¹² The technique of reducing complex wholes to multiple frames opens more of our ability to recognize patterns to logic, thereby helping us better integrate these two abilities.”

Chapter 2, A Strategy for Learning Well, first paragraph

Changed “pursuing Wisdom using” to “deciding well using” in the last sentence.

Chapter 3, Pursuing the Ring of Truth, first paragraph

Changed “Pursuing Wisdom using” to “Deciding well using” in the first sentence.

Chapter 3, Three Approaches to Policy, last paragraph

Changed “pursuing Wisdom using” to “deciding well using” in the fourth sentence.

Chapter 3, The Elephant in the Room, first paragraph

Changed “pursuing Wisdom using” to “deciding well using” in the first sentence.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, third paragraph

Changed “categories” to “classes” in the second sentence.

Changed “*interpretation category*” to “*class*” in all (3 occurrences).

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, last paragraph

Changed “category” to “class” in the first sentence.

Changed “to be possible states-of-the-world” to “exist” in the second sentence.

Changed “*the decision category*” to “*the decision class*” in the last sentence.

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, last paragraph

Changed “category” to “class” in the first sentence.

Changed “pubic problem” to “problem” in the fourth sentence.

Chapter 4, Refining Everyday Thinking, fifth sentence, footnote

“² Strictly speaking, we do not weed out these stories. We weed out applications of these stories. Corn in a cornfield is a crop. Corn in a beanfield is a weed.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“Note that we judge the usefulness of these description within bounds. Newtonian mechanics is good for predicting the behavior of large items moving at low speeds, but poor at predicting either the behavior of very small objects or the behavior of objects moving at very high speeds. Also note that descriptions of the world may have their own logic. A classic example is quantum mechanics, which includes such apparently strange behavior as objects that must rotate 360 degrees *twice* to return to their initial state.”

Chapter 4, *A Crude Look at the Whole*, first paragraph, last footnote, second through fifth sentences

“We may speculate that the releases of large amount of stress are, in part, cyclical. It takes time to accumulate enough stress to cause a major catastrophe. However, it is also clear that a major release of stress in one area may follow a major release of stress in another area. For example, a war may follow a major financial collapse.”

were changed to:

“We may speculate that the “roughness” of economic flows relative to the speed of progress varies inversely with the quality of decision-making.”

Chapter 5, *The Explicit Experiment*, last paragraph, footnote, second through fifth sentences

“In a case challenging whether the federal government could take away not only local butchers’ freedom to choose the price of the chickens they offered and what wages they paid their workers, but also their customers’ freedom to choose which chickens to buy (*A. L. A. Schechter Poultry Corporation v. United States*, 295 U. S. 495), the Supreme Court struck down Title I of this act in 1935. This was in time to prevent the country from following the Russian Empire into international socialism, or Italy and Germany into national socialism.”

was changed to:

“In 1935, the Supreme court struck down Title I of this act (*A. L. A. Schechter Poultry Corporation v. United States*, 295 U. S. 495), thereby preventing the United States from following Italy and Germany into national socialism.”

Chapter 5, Liberalism, last paragraph

Changed “pursuing Wisdom using” to “deciding well using” in the last sentence.

Chapter 6, A Common Timeless End, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “pursuing Wisdom using” to “deciding well using” in the first and third sentences (2 occurrences).

Chapter 7, A Classic Anomaly, title

Changed “*Classic*” to “*Temporal*.”

Chapter 7, A Greater Anomaly, title

Changed “*Greater*” to “*Timeless*.”

Chapter 7, A Timeless Anomaly, first paragraph

Changed “modern models for thinking clearly” to “current models of reasoning well” in the second sentence.

Changed “It” to “From the view of modern philosophy, it” in the last sentence.

Chapter 7, A Timeless Anomaly, second paragraph, first sentence

“The multiple-frame model of addresses this anomaly.”

was changed to:

“From the multiplex view, playing games well calls for a grander concept of reason than either logic or dialectics.”

Chapter 7, A Timeless Anomaly, second paragraph, last sentence

“The problem of pursuing Wisdom is the same for all of us.”

was changed to:

“Pursuing Wisdom calls for us to consider the symmetry of pursuing Wisdom before choosing a strategy. It calls for a grander concept of reason, a concept of reason in which all problems are part of the problem that contains all problems. People who base their decisions on temporal values, values based on the false belief that it is possible to separate problems from the problem that contains all other problems, act irrationally.”

Chapter 7, A Timeless Anomaly, last paragraph

“From the multiplex view, the end of competing well is Winning. Pursuing this timeless end well calls for winning over competitors to pursuing Wisdom. Adapting to an ever-increasing pace of change well calls for pursuing Wisdom.”

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 7, The Scope of Strategy, first paragraph

“The most important development in strategic thinking in the second half of the twentieth century was the idea of competing well by deciding well ever more quickly. The person most responsible for this idea was John Boyd.”

was changed to:

“To compete well, we need to consider the spatial boundaries that define the field. In the game of Reversi (Othello), the boundaries protect the corner positions from attack. In the battle of Thermopylae, the boundaries defined by the Athenian-controlled Gulf of Malia and the shoreline cliffs protected the Spartans and their allies from attack from the north and south.

“To compete well, we also need to consider the temporal boundaries that define the field. The most important development in strategic thinking in the second half of the twentieth century was the idea of competing well by deciding well ever more quickly. The person most responsible for this idea was John Boyd.

“*E-M Theory*”

Chapter 7, Timeless OODA Loop Analysis, last paragraph

Changed “wrote of his contribution,” to “wrote of his contribution:” in the second sentence.

Chapter 7, The Grandest Possible Strategy, first two paragraphs

“To compete well, we need to consider the spatial boundaries that define the field. In the game of Reversi (Othello), the boundaries protect the corner positions from attack. In the battle of Thermopylae, the boundaries defined by the Athenian-controlled Gulf of Malia and the shoreline cliffs protected the Spartans and their allies from attack from the north and south.

“To compete well, we also need to consider the temporal boundaries that define the field. As John Boyd has shown us, people who are able to decide well more quickly can prevail by getting inside their adversaries’ decision cycles.”

were deleted.

Chapter 8, Useful Reasoning, fourth paragraph

Changed “pursuing Wisdom using” to “deciding well using” in the last sentence.

Chapter 8, Useful Reasoning, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**pursuing Wisdom** using” to “**deciding well** using” and “**the pursuit of** all boundless factors of pursuing Wisdom, **which are timeless ends**” to “pursuing all boundless factors of pursuing Wisdom” in the first sentence.

Changed “**pursuing Wisdom** using” to “**deciding well** using” in the fourth sentence.

Chapter 8, Natural Reasoning, last paragraph

Changed “**pursuing Wisdom**” to “**deciding well**” in the last sentence.

Changed “the demand **as well as the supply**” to “**more of** the demand” in the second sentence of the footnote.

Changed “incompleteness” to “**relative** incompleteness” in the third sentence of the footnote.

Changes in Version 2011.07.12

Chapter 1, *Steps for Building Multiple-Frame Models*, third paragraph, first two sentences

“The tautological way in which we define the timeless end of pursuing Wisdom makes this single-frame model useless as a tool for helping us find problems to solve in pursuing Wisdom. To make this model useful in finding problems to solve in pursuing Wisdom, we need to add frames to it.”

were changed to:

“The tautological way in which we define the timeless end of pursuing Wisdom makes this single-frame model useless as a tool for helping us find problems to solve in pursuing Wisdom **that involve changing our concept of Wisdom**. To make this model useful in finding problems to solve in pursuing Wisdom **that involve changing our concept of Wisdom**, we need to add frames to it.”

Chapter 2, Invariant Tools for Deciding Well, last paragraph, footnote

Changed “trancendental-**multiplex mental**” to “trancendental” in the third sentence.

Chapter 2, Consumption, second paragraph

Changed “**difference between** pleasure and **joy**” to “**roles of** pleasure **and pain in living well**” in the last sentence.

Chapter 2, *Pleasure and Pain*, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Finding pleasure in an activity can improve the performance of that activity. Losing ourselves in **thinking can help us think better. Our ability to think clearly usually suffers when something painful, such as a headache, hinders us from losing ourselves in thinking. Similarly, losing ourselves in** a sporting activity helps us perform better. We usually perform less well when something painful, such as a sore shoulder, hinders us from losing ourselves in sport.”

was changed to:

“Finding pleasure in an activity can improve the performance of that activity. Losing ourselves sporting activity helps us perform better. We usually perform less well when something painful, such as a sore shoulder, hinders us from losing ourselves in sport. **Similarly, losing ourselves in a in thinking can help us think better. Our ability to think clearly usually suffers when something painful, such as a headache, hinders us from losing ourselves in thinking.**”

Chapter 3, The Elephant in the Room, third paragraph

Changed “**Divine**” to “**Creator**” in the second sentence.

Chapter 4, A Crude Look at the Whole, last paragraph, fifth sentence

“**Though largely hidden from current view,** these embedded mistakes both retard progress **toward Wisdom** and increase the probability of **civilization-threatening** catastrophes.”

was changed to:

“These embedded mistakes both retard progress and increase the probability of catastrophes.”

Chapter 7, E-M Theory, last paragraph

Changed “**close-in tactics**” to “**air forces**” in the fourth sentence.

Chapter 7, The Grandest Possible Strategy, last paragraph

Changed “Lincoln’s” to “**Abraham** Lincoln’s” in the last sentence.

Changes in Version 2011.07.16

Preface, fourth to last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “Albert Einstein’s source” to “what Albert Einstein believed stands at the cradle” in the last sentence.

Chapter 1, Setting Words Aright, fourth paragraph

Changed “to decide ever more wisely” to “decide well when to decide well is to learn to decide ever more wisely” in the last sentence.

Chapter 2, Invariant Tools for Living Well, last paragraph

Changed “The rest of this chapter” to “This chapter” in the second sentence.

Changed “work” to “book” in the last sentence.

Changed “pursuing Wisdom” to “deciding well” in the second to last sentence of the footnote.

Inserted a paragraph break between the second and third sentences.

Chapter 3, Zero Public Entropy, second paragraph

Changed “particle” to “object” in the last sentence.

Chapter 7, A Temporal Anomaly, second paragraph, last five sentences

“The first is that the situation occurs only once. This temporal assumption yields models that effectively prohibit learning by doing. The second is that the same situation occurs repeatedly. This timeless assumption yields models bounded by circumstance, but not by time. In effect, these models are symmetric with respect to time. These two simplifying assumptions divide game theory into temporal and timeless categories.”

were changed to:

“The first is that the game occurs only once. This yields temporal models. The second is that the same game occurs repeatedly. This yields timeless models that are symmetric in a way that we can use the knowledge that we learn from each game.”

Chapter 7, A Temporal Anomaly, last paragraph, first five sentences

“Hofstadter created a clever anomaly to modern game theory by creating a symmetrical model that prohibits learning. The multiple-player nature of his game creates symmetry. The one-time nature of his game prohibits learning. In doing so, he built a model that does not fit neatly into either the temporal or the timeless categories.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Hofstadter created a clever anomaly to modern game theory by creating a **temporal** model that **is symmetric in a way that we cannot use the knowledge that we learn from each game**. In doing so, he built a model that does not fit neatly into **modern game theory**.”

Chapter 7, *The Grandest Possible Strategy*, last paragraph

Changed semicolons to commas in the last sentence.

Changes in Version 2011.07.20

Preface, fourth paragraph

Changed “then use” to “can then use” in the last sentence.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, first paragraph

Changed “**everyday life**” to “**deciding well**” in the last sentence.

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, second paragraph

Changed “**find and solve problems in pursuing Wisdom**” to “**decide well**” in the last sentence.

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, last paragraph, end

Added the sentence:

“**It is the solution that rings true with the most of what we currently know.**”

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, last paragraph, end

Added the sentence:

“**It is the solution that rings true with the most of what we currently know.**”

Chapter 7, *A Temporal Anomaly*, title

Changed title to “***A Normal Anomaly***.”

Chapter 7, *A Normal Anomaly*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “cracks” to “cracks of game theory” in the second sentence.

Deleted the last sentence:

“For nearly thirty years, true believers in modern game theory have ignored his conclusion that what he calls *superrational* societies, societies in which people compete well by considering symmetry before choosing a strategy, will do better than rational societies.⁸”

“^s *Metamagical Themas*, p. 764.”

Chapter 7, *A Timeless Anomaly*, title

Changed title to “*A Revolutionary Anomaly*.”

Chapter 7, *A Revolutionary Anomaly*, first paragraph, first sentence

“Martin Gardner’s inability to think about Hofstadter’s game rationally and Hofstadter’s claim that his game shows the superiority of what he calls *superrational societies* hint at a far greater anomaly.”

was changed to:

“Martin Gardner’s inability to think about Hofstadter’s game rationally and Hofstadter’s claim that his game shows the superiority of what he calls *superrational societies*, societies in which people compete well by considering symmetry before choosing a strategy,^s hint at a far greater anomaly.”

“^s *Metamagical Themas*, p. 764.”

Chapter 8, *Useful Reasoning*, last paragraph, footnote

Changed “modern everyday thinking” to “a modern *concept of* everyday thinking” in the first sentence.

Changes in Version 2011.07.22

Chapter 1, *The EOQ/RTS Example*, last paragraph

Changed “*efficiently and effectively*” to “*wisely*” in the last sentence.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, first paragraph

Changed “*everyday life*” to “*pursuing Wisdom*” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, second paragraph

Changed “find and solve problems in pursuing Wisdom” to “decide well” in the last sentence.

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, last paragraph, end

Added the sentence:

“It rings true with more of what we currently believe we know.”

Chapter 4, *Refining Everyday Thinking*, last paragraph, footnote, last five sentences

“On a deeper level, ‘reflexive’ implies that our thoughts about the world are not part of the world. This is consistent with the atomistic thinking of Ludwig Wittgenstein. In contrast, ‘recursive’ implies that our thoughts about the world are part of the world. This is consistent with the decision-tree interpretation of quantum mechanics. For more on this, read the last chapter.”

were deleted from the online version. (They were never added to the PDF version.)

Chapter 4, *Two Types of Ignorance*, last paragraph, end

Added the sentence:

“More than one explanation can fit what we can sense. We ought to choose the explanation that best helps us pursue Wisdom.⁵”

“In philosophical terms, facts are theory-laden and theories that we use to explain are underdetermined by facts. In choosing problems to solve, we ought to choose the theory that both fits the facts and best helps us pursue Wisdom.”

Chapter 4, *Academic Fields*, fourth paragraph, end

Added the sentence:

“For example, it would not exclude consciousness from the study of quantum mechanics.”

Chapter 4, *A Crude Look at the Whole*, last paragraph

Changed “People” to “We” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2011.07.25

Preface, eighth paragraph

“In the chapter titled “Contemplating Well,” I explore the role of constraints in deciding well. This yields a number of unexpected tools. Notable among these “surprises” are a dynamic alternative to Pareto optimality and a decision-tree interpretation of quantum mechanics.”

was changed to:

“In the chapter titled “Contemplating Well,” I explore the role of constraints in deciding well. In the movie based on Carl Sagan’s novel, *Contact*, the person who discovered the primer for the alien plans for a transport device explained the key insight that led to this discovery: “An alien intelligence is going to be more advanced. That means efficiency functioning on multiple levels and in multiple dimensions.” The key to understanding the role of constraints in this work is a new concept of excellence in means, a concept that calls for efficiency on all levels in all frames of deciding well. Lovers of wisdom may find in this concept a tool for describing the ideal path toward all that is wise, hence toward all that is good, beautiful, true, and just.”

Preface, second to last paragraph

Changed “temporal view of the world” to “view of the world based on what they currently know rather than on what they need to know in order to decide well” in the last sentence.

Chapter 1, Invariant Tools for Deciding Well, last paragraph, footnote

Changed “Mandevillian work” to “work” in the third sentence.

Chapter 3, Leaving Behind Modern Explanations, fourth paragraph

“Complete knowledge of some recursive objects will always transcend our knowledge of them. The best we can do is to find a recursive process that will yield ever better approximations of these objects. The mathematical constant π is one such object. We can define π exactly (as the ratio of the circumference to the diameter of a Euclidean circle), but can never know it completely. In mathematical terms, we can never reduce this number to an algebraic expression. Wisdom is another such object. We can define Wisdom exactly (as knowledge that allows a being to decide perfectly), but we can never know it completely. In terms of this work, we can never reduce this object to a logical expression.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Complete knowledge of some recursive objects will always transcend our knowledge of them. **We can never know these objects completely.** The best we can do is to find a recursive process that will yield ever better approximations of **them.** The mathematical constant π is one such object. We can define π exactly (as the ratio of the circumference to the diameter of a Euclidean circle), but can never reduce π to an algebraic expression. Wisdom is another such object. We can define Wisdom exactly (as knowledge that allows a being to decide perfectly), but we can never reduce **Wisdom** to a logical expression.”

Chapter 3, *Public Order*, fourth paragraph

Changed “**three** meters” to “**two** meters” in the last sentence.

Chapter 4, *Metascience*, first paragraph, footnote

Changed “**longer** view” to “**more complete** view” in the last sentence.

Chapter 4, *Two Types of Ignorance*, last paragraph, footnote

Changed “**the facts**” to “**what we can sense**” in the last sentence.

Chapter 7, *The Grandest Possible Strategy*, first paragraph

Changed “**must not neglect**” to “**need**” in the first sentence.

Appendix, *Production Links*, last paragraph, last three sentences

“**If the team cannot find a readily solvable problem, it tries to balance the line by shifting processes from one work center to another. If the team cannot do this, it adds a kanban pair (P- and C-kanban) to the link. Adding kanban adds to the WIP buffer between the supplying and consuming work centers.**”

were deleted.

Changes in Version 2011.07.30

Preface, eighth paragraph, second through fifth sentences

“**In the movie based on Carl Sagan’s novel, *Contact*, the person who discovered the primer for the alien plans for a transport device explained the key insight that led to this discovery: “An alien intelligence is going to be more advanced. That means efficiency functioning on multiple levels and in multiple dimensions.”** The key to understanding **the role of constraints in this work** is a new concept of excellence in means, a concept that calls for efficiency on all levels in all frames of deciding well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“The key to understanding **this** role is a new concept of excellence in means, a concept that calls for efficiency on all levels in all frames of deciding well.”

Chapter 4, *Metascience*, entire subsection

“*Metascience*

From a modern view of believing well, science concerns what the producers of knowledge are able to supply under current constraints. In contrast, from the multiplex view, science concerns not only what we are able to supply under current constraints, but also what we need to decide well.⁴

“The essential process of deciding well consists of models that we use to choose solutions to temporal problems and models that we use to choose temporal problems, timeless problems, and the means for choosing problems. We may call the models that we use to choose problems *metascientific models*.

“Metascientific models are part of science. We not only test these models through experience, but also base them on experience:

Consider the process of pursuing a timeless end. Within the frame of pursuing this end, we define the timeless end and the means of pursuing this timeless end tautologically. This tautology tells us nothing about either the timeless end or the means to it.

Now consider the proposition that it is only from experience that we learn. From within the frame of pursuing a timeless end, it is only from the experience of overcoming the constraints that hinder us in pursuing the timeless end that we learn more of the timeless end. For example, from within the frame of pursuing the Good, it is only from the experience of overcoming some hunger that we learn of the greater good that results from overcoming this hunger. Similarly, from within the frame of pursuing the Truth, it is only from the experience of overcoming some ignorance that we learn of the greater truth that results from overcoming this ignorance.

Next, consider how this applies to pursuing Wisdom. From within the frame of pursuing Wisdom, it is only from experience in overcoming some foolishness that we learn of the greater wisdom that results from overcoming this foolishness. However, when this foolishness is what hinders us from seeing the relations between the boundless factors of pursuing Wisdom, we learn that we can learn something of one boundless factor of pursuing Wisdom by overcoming the constraints that hinder us from pursuing another boundless factor of pursuing Wisdom. For example, overcoming a constraint that hinders us from pursuing the Good, say the need for acceptance by what we currently believe to be members of our society, can help us learn more about the Truth.

From within the frame of pursuing the Truth, learning something from other than the experience of overcoming a constraint that *directly* hinders us from pursuing the Truth

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

may appear to be learning something from other than experience. From the multiplex view, the cause of this false appearance lies in failing to recognize that pursuing the Truth calls for us to pursue Wisdom. Anything that hinders us from pursuing Wisdom also hinders us from pursuing the Truth.

“Invariant science contains its own metascience.”

“⁴ In modern economic terms, the argument for a holistic approach to believing well put forth in this work concerns the demand as well as the supply side of believing well. Readers looking for supply-side arguments for a holistic approach to believing would do well to start with W. V. O. Quine’s “Two Dogmas of Empiricism.””

was deleted.

Chapter 4, Two Types of Ignorance, last paragraph, footnote

Deleted the last sentence: *“In choosing problems to solve, we ought to choose the theory that both fits what we can sense and best helps us pursue Wisdom.”*

Moved footnote forward one sentence.

Chapter 4, Two Types of Ignorance, last paragraph, end

Added the footnote:

*“⁵ In complexity science terms, invariant science is a self-similar, self-referential process that lies between what we may call *positive science* (the set of knowledge that helps us predict well but helps us explain nothing) and what we may call *metaphysics* (the set of models that transcends everyday thinking). Within this process, we may call the set of models that we use to help us predict well *true science* and the set of models that we use to explain well *metascience*. Only true science models can be both logically consistent and complete.”*

Chapter 6, A Common Timeless End, last paragraph

*“From a materialist view of deciding well using the multiple-frame model of pursuing Wisdom, **Wholeness is subordinate to the Good**: we become part of something infinitely larger than ourselves in order to live well. From a dualist view of deciding well using the multiple-frame model of pursuing Wisdom, **the Good is subordinate to Wholeness**: we live well in order to become part of something infinitely larger than ourselves. Which of these views is true currently is a matter of faith, a matter of belief beyond reason. From both types of **multiplex** views, **Wholeness is a boundless factor of pursuing Wisdom**: pursuing Wisdom calls for us to pursue Wholeness and pursuing Wholeness calls for us to pursue Wisdom. The lack of resources for pursuing Wisdom may **cause** us to choose between pursuing the Good and pursuing Wholeness. **Pursuing Wisdom makes it ever less likely that we will need to make this choice.**”*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“From a materialist view of deciding well using the multiple-frame model of pursuing Wisdom, we become part of something infinitely larger than ourselves in order to live well. *Wholeness is subordinate to the Good.* From a dualist view of deciding well using the multiple-frame model of pursuing Wisdom, we live well in order to become part of something infinitely larger than ourselves. *The Good is subordinate to Wholeness.* Which of these views is true currently is a matter of faith, a matter of belief beyond reason. From both types of views, **poverty** may **force** us to choose between pursuing the Good and pursuing Wholeness. *Pursuing Wisdom makes it ever less likely that we will need to make this choice.*”

Chapter 8, Useful Reasoning, first five paragraphs

“Pursuing ends well calls for us to overcome our ignorance of the world. This ignorance takes the form of uncertain predictions and incomplete explanations of causation. Uncertainty in predictions hinders us from solving problems well. Incompleteness in explanations hinders us from finding the best problems to solve. Models of the world that we use to predict and explain relate beliefs about the world in ways that are useful in predicting and explaining the world. We may call excellence in relating beliefs *reason* and the rules that we use to help us relate beliefs well the *rules of reason*.

“Excellence in relating beliefs depends on the type of end we choose to pursue. When we pursue temporal ends, we seek to find the best solution to a given temporal problem. Excellence in relating beliefs concerns reason within the frame that we use to describe this temporal problem. We may call the set of rules that we use to relate these beliefs *the rules of logic*.

“When we pursue timeless ends, we seek not only to solve given problems, but also to find problems to solve. Excellence in relating beliefs concerns not only the frames we use to solve given problems, but also those we use to find problems to solve. We may call the set of rules that we use to judge the latter *the rules of dialectics* after the dialectic form of discourse that Socrates used to explain what timeless ends are not.

“Excellence **in solving given problems calls for models of the world that are completely unambiguous. In contrast, excellence** in finding problems to solve in pursuing timeless ends calls for models that are ambiguous with respect to the timeless end and the means of pursuing the timeless end. If these two concepts were not ambiguous, there would be no room for better approximates of these two concepts.

“**The rules of dialectics help us find problems to solve in pursuing timeless ends.** As we saw in the first chapter, finding the best problem to solve in pursuing a timeless end calls for us to choose a frame, which in turn calls for us to choose a frame, which in turn calls for us to choose a frame, and so on to infinity. We can address this infinitely large problem well by deciding well using the multiple-frame model of pursuing Wisdom.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“Pursuing ends well calls for us to overcome our ignorance of the world. This ignorance takes the form of uncertain predictions and incomplete explanations of causation. Uncertainty in predictions hinders us from solving problems well. Incompleteness in explanations hinders us from finding the best problems to solve.

“Models of the world that we use to predict and explain relate beliefs about the world in ways that are useful in predicting and explaining the world. We may call excellence in relating beliefs *reason* and the rules that we use to help us relate beliefs well the *rules of reason*. Excellence in relating beliefs depends on the type of end we choose to pursue.

“When we pursue temporal ends, we seek to find the best solution to a given temporal problem. Excellence in relating beliefs concerns reason within the frame that we use to describe this temporal problem. We may call the set of rules that we use to relate these beliefs *the rules of logic* after the rules of reason Aristotle used to relate beliefs in his pursuit of natural forms. Excellence in solving given problems calls for models of the world that are completely unambiguous.

“When we pursue timeless ends, we seek not only to solve given problems, but also to find problems to solve. Excellence in relating beliefs concerns not only the frames we use to solve given problems, but also those we use to find problems to solve. We may call the set of rules that we use to judge the latter *the rules of dialectics* after the dialectic form of discourse that Socrates used to explain what these timeless ends are not. Excellence in finding problems to solve in pursuing timeless ends calls for models that are ambiguous with respect to the timeless end and the means of pursuing the timeless end. If these two concepts were not ambiguous, there would be no room for better approximates of these two concepts.

“As we saw in the first chapter, finding the best problem to solve in pursuing a timeless end calls for us to choose a frame, which in turn calls for us to choose a frame, which in turn calls for us to choose a frame, and so on to infinity. We can address this infinitely large problem well by deciding well using the multiple-frame model of pursuing Wisdom.”

Chapter 8, Useful Reasoning, last paragraph, footnote

Changed “a **modern** concept” to “a **biological** concept” in the first sentence.

Changes in Version 2011.08.02

Chapter 3, A Decision Tree Interpretation of Quantum Mechanics, first paragraph, last footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“⁹ Implicit in this decision-oriented model of the world is belief that free will exists. We currently have no empirical way of disproving that free will either exists or does not exist. However, **we can logically determine that we ought to act as if free will exists: If free will does not exist, we have no choice in what to believe; including whether to believe that free will exists or does not exist. We are as puppets in a shadow play. On the other hand, if free will exists, we have a choice in whether to believe that free will exists or does not exist. If we choose to believe that free will exists, we have a logical reason to try to pursue the invariant end of deciding well. If we choose to believe that free will does not exist, we will have no logical reason to try to pursue the invariant end of deciding well. From the invariant view of deciding well, we ought to choose the research program that seeks to disprove the beautiful choice, which is that free will exists. This calls for us to act as if we believe that free will exists.**”

was changed to:

“⁹ Implicit in this decision-oriented model of the world is belief that free will exists. We currently have no empirical way of disproving that free will either exists or does not exist. However, from **the multiplex** view, we ought to choose the research program that seeks to disprove the beautiful choice, which is that free will exists. This calls for us to act as if we believe that free will exists.”

Chapter 4, *A Crude Look at the Whole*, last paragraph, footnote

“¹³ **From the invariant view of deciding well, we ought to replace statistics-based macroeconomic models with agent-based computer simulations. These simulations ought to explain speculative bubbles, business cycles, long-term technological change (“Kondratieff waves”), and very long-term cultural change (“economic ages”). The purpose of these high-level models ought to be to help us find better problems to solve. We ought to test these models by testing how well they help us find better problems to solve. This conflicts with the belief of Austrian School economists that we do not need to test theories that explain human action. It also conflicts with the closely related belief of some complex adaptive system scientists that we do not need to test computer models of emergent phenomena in social systems. See Lissack, M. R. & Richardson, K. A, “When Modeling Social Systems, Models ≠ the Modeled: Reacting to Wolfram’s A New Kind of Science,” *Emergence*, 2001, Vol. 3, No. 4, pp. 95–111.**”

was deleted.

Chapter 7, *Temporal OODA Loop Analysis*, second paragraph

Changed “**self-referential**, self-similar process” to “self-similar process” in the first sentence.

Chapter 7, *Timeless OODA Loop Analysis*, first paragraph

Changed “**solve**” to “**address**” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Added the sentence: “**In short, he took a thoroughly biological approach to learning.**”

Chapter 8, Natural Reasoning, last paragraph

Changed “evidence” to “**empirical** evidence” in the first sentence.

Changes in Version 2011.08.08

Preface, fourth paragraph

Changed “*multiple-frame* models” to “*multiple-frame* models **of deciding well**” in the first sentence.

Preface, ninth paragraph

Changed “extend” to “**create or** extend” in the last sentence.

Chapter 1, *The EOQ/RTS Example*, second paragraph

Changed “**parts**” to “**hoods**” in the second sentence.

Changed “hoods” to “**of these** hoods” in the fourth sentence.

Chapter 1, *The EOQ/RTS Example*, last paragraph

Removed italics from “**but also products in the form of knowledge of how to produce ever more wisely**” in the fifth sentence.

Chapter 1, *The Need for Timeless Frames*, second bullet point

Changed “**per se**” to “**in themselves**” in the first sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, last paragraph, footnote

Changed “**logic**” to “**reason**” in the first sentence.

Chapter 3, Pursuing the Ring of Truth, last paragraph

Changed “**By combining the frames for contemplating and living well, we learn that beauty**” to “Beauty” in the first sentence.

Chapter 3, *Three Approaches to Policy*, second paragraph

Added the following sentence to the end of the paragraph:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“People who take this approach put their faith in the wisdom of current experts.”

Chapter 3, *Three Approaches to Policy*, third paragraph

Replaced the footnote:

“⁴ According to Thomas Sowell, when confronted with the complexities of life, those in the first group will tend to put their faith in the wisdom of experts and those in the second group will tend to put their faith in the wisdom of crowds, especially in the accumulated wisdom of the ages handed down to us in the form of language, culture, case law, and economic relations. For more on this see Thomas Sowell, *A Conflict of Visions: Ideological Origins of Political Struggles* (New York: William Morrow, 1987).”

with the following new sentence and footnote:

“People who take this approach put their faith in the wisdom of current concepts, customs, case law, and common sense.⁴”

“⁴ In his book, *A Conflict of Visions: Ideological Origins of Political Struggles* (New York: William Morrow, 1987), Thomas Sowell distinguishes between what he calls unconstrained and constrained visions. From an unconstrained view, the problems we face are relatively simple relative to our ability to solve them. The problems we face are obvious. All we need to do to solve our problems is to put the right people in charge. This is consistent with an engineering approach to policy. From a constrained view, the problems we face are complex relative to our ability to solve them. The process of finding problems to solve is at least as important as the process of solving problems. Further, the people most able to solve problems well are the people closest to them. This is consistent with a biological approach to policy.”

Chapter 3, *Three Approaches to Policy*, last paragraph

Added the following sentence to the end of the paragraph:

“People who take this approach put their faith in the pursuit of wisdom that transcends current knowledge.”

Chapter 3, *Public Order*, first three paragraphs

“Associated with each of these three ways of thinking about policy is a distinct way of thinking about public order. From the engineering view, policymakers find and solve public problems. In doing so, they seek to impose their sense of order on the world. From the engineering view, increasing public order is always good.

“From the biological view, policymakers promote a climate that helps people live well. This includes allowing people to experiment with new ways of living well. Too much or

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

too little public order shuts down this experimentation. From **the biological** view, increasing public order is good when there is too little of it and bad when there is too much of it.

“**From the public view**, policymakers promote a climate that helps people pursue Wisdom. This gives rise to an invariant concept of public order that concerns how well people decide. From **the public** view, increasing *invariant* public order is always good.”

were changed to:

“Associated with each of these three ways of approaching policy is a distinct way of thinking about public order. **Policymakers who take the engineering approach** find and solve public problems. In doing so, they seek to impose their sense of order on the world. From **this** view, increasing public order is always good.

“**Policymakers who take a biological approach** promote a climate that helps people live well. This includes allowing people to experiment with new ways of living well. Too much or too little public order shuts down this experimentation. From **this** view, increasing public order is good when there is too little of it and bad when there is too much of it.

“**Policymakers who take a public approach** promote a climate that helps people pursue Wisdom. This gives rise to an invariant concept of public order that concerns how well people decide. From **this** view, increasing *invariant* public order is always good.”

Chapter 3, *Public Order*, fourth paragraph

Changed “**the** example” to “**an** example” in the first sentence.

Chapter 3, *Public Order*, fifth paragraph, first two sentences

“A team taking an engineering approach would **approach the problem of ordering themselves. Their first task would be to** reduce the problem of ordering themselves to a set of problems that they can address using what they currently know.”

were changed to:

“A team taking an engineering approach would reduce the problem of ordering themselves to a set of problems that they can address using what they currently know.”

Chapter 3, *Public Order*, last paragraph

Changed “**the** public approach” to “**a** public approach” in the first sentence.

Chapter 3, *Zero Public Entropy*, title

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed title to “*Public Entropy*” and moved it down two paragraphs.

Chapter 3, *Public Entropy*, new first two paragraphs

“One lesson that we can learn from contemplating how liquids become superfluid is the usefulness of the concept of entropy. Entropy is a measure of the amount of **potentially useful resources** in an object. **Modern scientists first used this concept to think about engines that derive useful work from differences in heat. In this context, entropy is a measure of the amount of useful energy that it is theoretically possible to remove from an object. They later used this concept to think about the amount of useful information in an object. In this context, entropy is a measure of the amount of signal that it is theoretically possible to remove from an object. We may use this concept to think about useful resources in decision processes. In this context, entropy is a measure of the amount of wealth that it is theoretically possible to remove from a decision process. We may call this measure *public entropy*. We pursue the transcendental end of *zero public entropy* by removing *non-knowledge* wealth from a decision process, thereby inducing the creation of knowledge wealth.⁵”**

“**Zero public entropy** is the transcendental end of the process of **inducing the creation of knowledge useful in deciding well. It is the dynamic alternative to Pareto optimality.⁶ From the view of a person behind the veil of complete ignorance, it is the ideal process of deciding well.**”

“⁵ **For more on the process of inducing the creation of knowledge, see the Appendix. Note that public entropy relates inversely with physical entropy. Such is life.**”

“⁶ **Pareto optimality is the state of the world in which it is impossible to make any person better off without making at least one other person worse off.**”

were changed to:

“One lesson that we can learn from contemplating how liquids become superfluid is the usefulness of the concept of entropy. Entropy is a measure of the amount of **disorder** in an object. **We may also use this concept as a measure of wasted *non-knowledge* wealth in a process. We may call this measure *public entropy*.**”

“**Zero public entropy** is the transcendental end of the process of **lowering public entropy.⁶ From the view of modern economics, it is the dynamic alternative to Pareto optimality.⁷ From the view of a person behind the veil of complete ignorance, it is **what makes** the ideal process of deciding well **ideal.**”**

“⁵ **From the view of modern science, ‘entropy’ has several meanings that concern disorder, inefficiency, and unpredictability. Some are useful in studying energy and others in studying information. In 1827, James Clerk Maxwell imagined how an imaginary intelligent being, which Lord Kelvin called a “demon,” could convert information into energy by sorting gas molecules by their kinetic energy. In 2010, a**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

team of Tokyo scientists confirmed that it is possible to convert information into energy (Toyabe, S., Sagawa, T., Ueda, M. Muneyuki, E., & Sano, M. “Experimental demonstration of the information-to-energy conversion and validation of the generalized Jarzynski equality,” *Nature Physics*, vol. 6, pp. 988–92). A science based on pursuing Wisdom may help us explain the relation between information and energy in ways that are useful in helping us find problems to solve in pursuing Wisdom. Developing such a science calls for defining public entropy.”

“ Removing non-knowledge wealth from the process of deciding well without lowering the quality of deciding well induces the creation of knowledge of how to decide well using fewer non-knowledge resources. For more on the process of inducing the creation of knowledge useful in deciding well, see the Appendix.”

“ Pareto optimality is the state of the world in which it is impossible to make any person better off without making at least one other person worse off.”

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, third paragraph

Changed “many decades” to “long” in the first sentence.

Changed “Following this logic” to “Thus” in the last sentence.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, fourth paragraph

Changed “public” to “multiplex” in the first sentence.

Chapter 6, *Experiencing the Mysterious*, second paragraph, second and third sentences

“From the multiplex view, there is no rational conflict between pursuing the temporal end of mystical oneness and the timeless end of revering life well. Indeed, these two ends often complement each other.”

were changed to:

“From the multiplex view, these two ends often complement each other.”

Chapter 6, *A Common Timeless End*, first paragraph

Eliminated all italics.

Chapter 8, *Useful Reasoning*, fifth paragraph

“As we saw in the first chapter, finding the best problem to solve in pursuing a timeless end calls for us to choose a frame, which in turn calls for us to choose a frame, which in

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

turn calls for us to choose a frame, and so on to infinity. We can address this infinitely large problem well by deciding well using the multiple-frame model of pursuing Wisdom.”

was changed to:

“These models for pursuing boundless factors of deciding well can never be both logically consistent and complete. Each contains the belief that we will never know the true meaning of its timeless end. If we claim that we have found this meaning, then the model is logically inconsistent. On the other hand, if we claim that we have not found this meaning, then we cannot prove that the model is logically complete. To prove that this model is complete, we need a more complete model. To prove that this model is complete, we need a still more complete model. To prove that this model is complete, we need a still more complete model. We may continue this cycle of ever-increasing completeness until we arrive at the model for pursuing Wisdom put forth in this work.”

“³ Note that these two arguments parallel the basic arguments that Kurt Gödel used in his two incompleteness theorems. The multiplex model for pursuing Wisdom is consistent with Gödel’s belief in the existence of an *a priori* science, but not with the belief in the existence of an *a priori* science based on modern reasoning. Multiplex reasoning is alien to modern science, but not to modern art. In the movie based on Carl Sagan’s novel, *Contact*, the person who discovered the primer for the alien plans explained the key insight that led to this discovery: “An alien intelligence is going to be more advanced. That means efficiency functioning on multiple levels and in multiple dimensions.” The multiplex reasoning for pursuing Wisdom concerns efficiency functioning on all levels of all frames of deciding well.”

Chapter 8, Summary, first paragraph

“Understanding the process by which we progress toward these timeless ends can provide us with tools for helping us find better problems to solve.”

was changed to:

“Understanding the process by which we best progress toward these timeless ends can help us find better problems to solve.”

Changes in Version 2012.08.12

Chapter 8, Useful Reasoning, end

Added the paragraph:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The complete multiplex model of pursuing Wisdom consists of an unknown number of incomplete frames. In theory, it provides us with a framework for exposing not only the conflicts in our networks of beliefs, but also all holes in these networks.⁵ Hence, we may call it *rationally complete*.⁶”

⁵ Holes in our networks of beliefs emerge from timeless ends that concern the models we use to describe the world. Consider the difference between Quine’s pragmatism and the boundless pragmatism put forth in this work. Quine would have us pursue the timeless end of the natural sciences. As we pursue this end, we discover things that conflict with our current beliefs. Quine would have us settle these conflicts in the least disruptive way. This is consistent with the way the Europeans solved the problem created by the discovery of what they now call black swans. Following Quine’s conservative rule, we ought to prefer the EOQ model to the RTS model as a means of describing how best to set up tools. Neither of these models directly concerns the timeless end of the natural sciences. Hence, we ought to choose the model that better fits our current beliefs about science, which is the EOQ model. It is the more “scientific” model of setting up tools. From this “naturalistic” view, the discovery of the usefulness of learning through experience in setting up tools creates a conflict rather than a hole in our networks of beliefs.”

⁶ Quine’s concept of holism emerges from the way we induce general knowledge from experience, but not from the inexhaustibility of knowledge. From this “naturalistic” view, *the philosophy of science is philosophy enough*. In contrast, the multiplex concept of holism put forth in this work emerges not only from the way we induce general knowledge from experience, but also from the inexhaustibility of knowledge. From this “invariant” view, *the philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of pursuing Wisdom*. The incompleteness of Quine’s concept of holism gave rise not only to Morton White’s argument with Quine over the scope of holistic pragmatism, but also to Jaegwon Kim’s criticism of Quine’s “naturalistic” theory of knowledge for not having a normative element. The normative element missing from Quine’s theory of knowledge is the teleonomic pursuit of the Good.”

Chapter 8, Natural Reasoning, second paragraph, second footnote

⁶ Philosophers of science may find in this pursuit parallels to W. V. O. Quine’s naturalistic epistemology. A major difference is that the multiplex approach considers more of the demand side of pursuing the Truth. The relative incompleteness of Quine’s epistemology gave rise to both Jaegwon Kim’s criticism of Quine’s epistemology for not having a normative element and Morton White’s argument with Quine over the scope of holistic pragmatism. *The philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of pursuing Wisdom*.”

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2012.08.20

Acknowledgments, last paragraph

“Finally, there is my father, John Huntington Harris, who succeeded better than most at balancing pragmatism and idealism. He owed his pragmatism to his paternal grandfather, a successful Iowa entrepreneur, whose father and grandfather had been New England sea captains. He owed his idealism to his Congregationalist mother, who drummed her Social Gospel ideals into her Grinnell High School students, including Harry Hopkins, and into her three sons. Despite my father’s great ability to get to the root of most matters by seeing “the big picture,” he could not grasp what I had written. He claimed that this was due to my use of such terms as “recursionist economics” and “paradigm shift.” A year and a half after his death in 2003, I recognized that my style was too pretentious. I have since tried to write more plainly.”

was changed to:

“The last three were sons of early-twentieth-century bankers from Grinnell, Iowa. Each had a different view of how best to impart wisdom. My great uncle, Wilfred James McNeil, told me parables based on his experiences as Comptroller of the Department of Defense under its first six secretaries. My business ethics professor, George Leland Bach, took a Socratic approach. My father, John Huntington Harris, pointed out people and habits worth imitating. He also expressed great contempt for people who too readily reduce the world to numbers, especially for those he worked with in the Statistical Control “Group” of the Army Air Force, who he believed ought to know better. All three knew that the way forward that can be told is not the true way forward. This work concerns the way that we tell the way forward. It concerns what lovers of wisdom call *logos*.”

Preface, third paragraph

Changed “universal” to “universally **useful and inexhaustible**” in the second sentence.

Enclosed “**boundless factors**” in parentheses in the second sentence.

Changed “**universal**, boundless” to “boundless” in the block quote (4 occurrences).

Changed “**three** steps” to “steps” in the last sentence.

Preface, fourth paragraph

Changed “**universal**, boundless” to “boundless” in all (2 occurrences).

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, sixth paragraph

“Students of Western thought may find in this recursive process a synthesis of the processes by which Plato and Aristotle pursued wisdom. Like the process of Plato, it involves pursuing knowledge of ideal forms. Unlike this process, it is endless. We shall never see the whole truth by the light of all that is good. Like the process of Aristotle, it involves rules of reason. Unlike this process, it involves not only rules that bind beliefs together into coherent models of the world, but also rules for binding these models together into a coherent whole. The source of the coherence for binding these models together is the symmetry of deciding well.”

was deleted.

Preface, new sixth paragraph

Changed “universal factors of deciding well that we can never have in excess” to “boundless factors of deciding well” in the last sentence.

Preface, last paragraph

Deleted “, and that on each reading they will better understand deciding well” from the last sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph

Changed “universal” to “universally useful and inexhaustible” in the second sentence.

Enclosed “boundless factors” in parentheses in the last sentence.

Chapter 3, *Public Order*, last paragraph

Changed “groups of atoms act as if they were a single quantum object” to “groups of these atoms act as if they were a single atom” in the last sentence.

Chapter 3, *Public Entropy*, first paragraph, footnote, last two sentences

Changed “is is” to “is” in the third sentence.

Chapter 3, *Public Entropy*, first paragraph, footnote, last two sentences

“A science based on pursuing Wisdom may help us explain the relation between information and energy in ways that are useful in helping us find problems to solve in pursuing Wisdom.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the multiplex view, the concept of public entropy helps us explain the relation between information and energy in ways that are useful in helping us find problems to solve in pursuing Wisdom.”

Chapter 4, Refining Everyday Thinking, fifth paragraph, footnote

² Note that we judge the usefulness of these description within bounds. Newtonian mechanics is good for predicting the behavior of large items moving at low speeds, but poor at predicting either the behavior of very small objects or the behavior of objects moving at very high speeds. Also note that descriptions of the world may have their own logic. A classic example is quantum mechanics, which includes such apparently strange behavior as objects that must rotate 360 degrees *twice* to return to their initial state.”

was changed to:

² Note that we judge the usefulness of these descriptions within bounds. Newtonian mechanics is good for predicting the behavior of large items moving at low speeds, but poor at predicting either the behavior of very small objects or the behavior of objects moving at very high speeds. Note too that descriptions of the world may have their own logic. A classic example is quantum mechanics, which includes such apparently strange behaviors as objects that must rotate 360 degrees *twice* to return to their initial state.”

Chapter 4, Learning from Experience, title

Changed title to “Learning *through* Experience.”

Chapter 4, Learning through Experience, second paragraph, fourth sentence

“Trading problems that give rise to uneven flow that Toyota and others have solved include (1) distributors who fail to share knowledge about their customers with their suppliers for fear of losing business; (2) workers who fail to tell their bosses about foolish procedures for fear of losing work; and (3) workers who lose their jobs during slow times because their labor contracts do not let wages fall.”

was changed to:

“Distributors fail to share knowledge about their customers with their suppliers for fear of losing business. Workers fail to tell their bosses about foolish procedures for fear of losing work. Workers prefer fixed to flexible pay, which leads to layoffs during slow times.”

Chapter 4, Useful Reminders, second paragraph

Changed “tend to change” to “often change” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, *Promote Pursuing Wisdom, not Temporal Order*, second paragraph, last sentence

“These mistakes include such things as financial products that look good in the short run but are likely to fail in the long run; the proliferation of models for pricing financial assets that presume that periods of great turbulence are rare; and a regulatory environment that favors the temporal values of economic growth and stability over the invariant value of Wisdom, hence over the invariant values of the Good, the Truth, Justice, Wholeness, and all of the other boundless factors of pursuing Wisdom.”

was deleted.

Chapter 5, Liberalism, third paragraph

Changed “In the long run, nothing” to “Nothing” in the last sentence.

Chapter 6, *Einstein’s Twin Warnings*, last paragraph

Changed “who think first of Jesus as the way, and the truth, and the life,” to “who think first of Jesus as the way, and the truth, and the life, as the Word made flesh,” in the second sentence.

Chapter 6, A Common Timeless End, first paragraph

Changed “both types of views” to “both” in the fifth sentence.

Chapter 7, *A Revolutionary Anomaly*, second paragraph, first two sentences

“From the multiplex view, playing games well calls for a grander concept of reason than either logic or dialectics. Playing games well is a matter of choosing the best frame for what we perceive is the given strategic situation.”

were changed to:

“From the multiplex view, playing games well is a matter of choosing the best frame for what we perceive is the given strategic situation.”

Chapter 7, *Temporal OODA Loop Analysis*, second paragraph

Changed “He” to “Boyd” in the last sentence.

Chapter 7, *Timeless OODA Loop Analysis*, first paragraph

“Boyd also used his OODA loop model to address problems in which learning was important. This called for (1) defining a timeless end of competing well; (2) adding a learning function to the basic cycle; and (3) defining our relations with each other. Boyd

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

(1) defined his concept of the timeless end of competing well to be surviving on our own terms; (2) expanded the orientation element in the OODA loop to include a learning function that includes not only our **past experiences and new information (from our recent experiences)**, but also our genetic heritage, cultural traditions, and tools for analyzing and synthesizing; **and (3) argued that we form groups on all scales in order better to survive on our own terms. In short, he took a thoroughly biological approach to learning.**”

was changed to:

“Boyd also used his OODA loop model to address problems in which learning was important. This called for defining a timeless end of competing well. Boyd defined his concept of the timeless of competing well to be surviving on our own terms. **This is a thoroughly biological concept. It also called for adding a learning function to the basic cycle. Boyd** expanded the orientation element in the OODA loop to include a learning function that includes not only our experiences, but also our genetic heritage, cultural traditions, and tools for analyzing and synthesizing. **Finally, it called for defining our relations with each other. Boyd** argued that we form groups on all scales in order better to survive on our own terms.”

Chapter 7, *Boyd’s Grand Strategy*, last paragraph

Changed “**thoroughly** biological” to “biological” in the second sentence.

Chapter 7, *The Grandest Possible Strategy*, last paragraph

Changed “**the strategy** of” to “**that** of” in the first sentence.

Changed “**This strategy**” to “**It**” in the last sentence.

Merged last paragraph into preceding paragraph.

Chapter 8, *Useful Reasoning*, fifth paragraph, footnote, first sentence

Changed “**The** multiplex model” to “**Note too that** the multiplex model” in the second sentence.

Chapter 8, *Useful Reasoning*, fifth paragraph, footnote, third sentence

“Multiplex reasoning is alien to modern science, but not to modern art.”

was changed to:

“**Modern reasoning concerns the rules we use to bind beliefs together into coherent models of the world. The multiplex reasoning of deciding well concerns not only the rules we use to bind beliefs together into coherent models of the world, but also the rules**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

we use to bind these models together into a coherent whole. Such reasoning is alien to modern science, but not to modern art.”

Chapter 8, Useful Reasoning, last paragraph

Changed “*rationally* complete” to “*reasonably* complete” in the last sentence.

Chapter 8, Useful Reasoning, last paragraph, first footnote

“⁵ Holes in our networks of beliefs emerge from timeless ends that concern the models we use to describe the world. Consider the difference between Quine’s pragmatism and the boundless pragmatism put forth in this work. Quine would have us pursue the timeless end of the natural sciences. As we pursue this end, we discover things that conflict with our current beliefs. Quine would have us settle these conflicts in the least disruptive way. This is consistent with the way the Europeans solved the problem created by the discovery of what they now call black swans. Following Quine’s conservative rule, we ought to prefer the EOQ model to the RTS model as a means of describing how best to set up tools. Neither of these models directly concerns the timeless end of the natural sciences. Hence, we ought to choose the model that better fits our current beliefs about science, which is the EOQ model. It is the more “scientific” model of setting up tools. From this “naturalistic” view, the discovery of the usefulness of learning through experience in setting up tools creates a conflict rather than a hole in our networks of beliefs.”

was changed to:

“⁵ Conflicts in our networks of belief occur when beliefs compete for the same function in our system of beliefs. Quine would have us settle these conflicts in the least disruptive way. This is consistent with the way the Europeans solved the problem created by the discovery of what they now call black swans. It is also consistent with choosing the EOQ model over the RTS model as a means of describing how best to set up tools. From the temporal view of modern science, the EOQ model is the more “scientific” model of setting up tools. In contrast, holes in our networks of beliefs emerge from the wholeness of our belief systems. From the “holistic” view of invariant science, the discovery of the usefulness of learning through experience in setting up tools exposes holes throughout our networks of beliefs. We fill these holes with beliefs that are consistent with solving the problems we face by learning through experience.”

Chapter 8, Useful Reasoning, last paragraph, last footnote

“⁶ Quine’s concept of holism emerges from the way we induce general knowledge from experience, but not from the inexhaustibility of knowledge. From this “*naturalistic*” view, *the philosophy of science is philosophy enough*. In contrast, the multiplex concept of holism put forth in this work emerges not only from the way we induce general knowledge from experience, but also from the inexhaustibility of knowledge. From this “*invariant*” view, *the philosophy of science is philosophy enough if and only if science*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

includes the interwoven pursuits of all boundless factors of pursuing Wisdom. The incompleteness of Quine’s concept of holism gave rise **not only** to Morton White’s argument with Quine over the scope of holistic pragmatism, **but also to** Jaegwon Kim’s criticism of Quine’s “**naturalistic**” **theory of knowledge** for not having a normative element. **The normative element missing from Quine’s theory of knowledge is the teleonomic pursuit of the Good.**”

was changed to:

“Quine’s concept of holism emerges from the way we induce general knowledge from experience, but not from the inexhaustibility of knowledge. From this view, *the philosophy of science is philosophy enough*. In contrast, the multiplex concept of holism put forth in this work emerges not only from the way we induce general knowledge from experience, but also from the inexhaustibility of knowledge. From this view, *the philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of pursuing Wisdom*. The incompleteness of Quine’s concept of holism gave rise to **both** Morton White’s argument with Quine over the scope of holistic pragmatism **and** Jaegwon Kim’s criticism of Quine’s **epistemology** for not having a normative element. **(From the multiplex view, the normative element missing from Quine’s theory of knowledge is the teleonomic pursuit of the Good.)**”

Chapter 8, Natural Reasoning, last paragraph

Changed “multiplex view” to “multiplex view **of deciding well**” in the last sentence.

Changes in Version 2012.08.24

Chapter 3, Leaving Behind Modern Explanations, title

Changed title to “**Contemplating the Way Forward**.”

Chapter 3, Contemplating the Way Forward, first paragraph

“Pursuing Wisdom calls for us to **choose among a nearly infinite** number of **nearly infinite paths**. **Thinking deeply about this problem calls for us to leave behind modern models for explaining the world**. We can use the concept of *transcendental recursive objects* to help us **muddle forward ever more wisely**.”

was changed to:

“Pursuing Wisdom calls for us to **think deeply about how we decide**. We can use the concept of *transcendental recursive objects* to help us **organize our thoughts**.”

Chapter 3, *Public Order*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “below 170 billionths of a degree above absolute zero” to “at roughly 170 billionths of a degree above absolute zero,” in the third sentence.

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, last paragraph

Changed “what we believe we know” to “what we believe we know about the world” in the last sentence.

Chapter 4, *Refining Everyday Thinking*, last paragraph, footnote

Changed “more complete” to “pragmatic” in the last sentence.

Chapter 4, *Two Types of Ignorance*, last paragraph, last footnote

“⁵ In complexity science terms, invariant science is a self-similar, self-referential process that lies between what we may call *positive science* (the set of knowledge that helps us predict well but helps us explain nothing) and what we may call *metaphysics* (the set of models that transcends everyday thinking). Within this process, we may call the set of models that we use to help us predict well *true science* and the set of models that we use to explain well *metascience*. Only true science models can be both logically consistent and complete.”

was changed to:

“⁵ From the multiplex view, invariant science is a self-similar, self-referential process that includes its own metascience.”

Chapter 4, *Useful Reminders*, first paragraph

Deleted “— to see the world in a grain of sand” from the last sentence.

Chapter 6, *Heroic Death*, second paragraph

Changed “to distinguish” to “do we learn to distinguish” in the second sentence.

Chapter 7, *The Scope of Game Theory*, fourth paragraph

Changed “recognized that Hofstadter’s game did not fit into modern game theory categories, but this knowledge did not help him decide how to decide” to “claimed that he was unable to decide” in the fifth sentence.

Chapter 7, *A Revolutionary Anomaly*, first paragraph

Changed “inability to think about Hofstadter’s game” to “claim that he was unable to behave” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 7, *A Revolutionary Anomaly*, first paragraph, last two sentences

“It is neither logical nor dialectical. From the view of modern philosophy, it falls between the cracks of reason.”

were changed to:

“It falls between the cracks of modern reason.”

Chapter 7, *A Revolutionary Anomaly*, second paragraph

Changed “a grander concept of reason than either logic or dialectics” to “a grander concept of reason” in the first sentence.

Chapter 7, *A Revolutionary Anomaly*, first paragraph

Changed “inability to think” to “claim that he was unable to think” in the first sentence.

Chapter 8, *Useful Reasoning*, fourth paragraph

Changed “these two concepts” to “them” in the last sentence.

Chapter 8, *Useful Reasoning*, fifth paragraph

“These models for pursuing boundless factors of deciding well can never be both logically consistent and complete.”

were changed to:

“Models for pursuing timeless ends can never be both logically consistent and complete.”

Changes in Version 2012.08.25

Preface, last paragraph

“My hope in writing such a short book is that people will read it more than once.”

was changed to:

“The spirit of our age concerns breaking unwieldy wholes into parts in order to solve problems better. A major disadvantage of using this process is forgetting to consider the infinitely greater whole. Although definite knowledge of this whole will remain forever beyond our grasp, we must not pass over it in silence. When we expand the scope of the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

problems we face to the limits of imagination, a structure of invariant values emerges. Understanding the process by which we best progress toward these timeless ends can help us find better problems to solve.”

Chapter 8, Useful Reasoning, fifth paragraph, third through last sentences

“If we **claim that we have found** this meaning, then the model is **logically** inconsistent. **On the other hand, if we claim that we have not found** this meaning, then **we cannot prove that** the model is **logically** complete. To prove that this model is complete, we need a more complete model. To prove that this model is complete, we need a still more complete model. To prove that this model is complete, we need a still more complete model. We may continue this cycle of ever-increasing completeness until we arrive at the model for pursuing Wisdom put forth in this work.”

was changed to:

“If we **find** this meaning, the model is **complete, but** inconsistent. If we **do not find** this meaning, the model is **consistent, but incomplete**. **Further, to** prove that this model is complete, we need a more complete model. To prove that this model is complete, we need a still more complete model. To prove that this model is complete, we need a still more complete model. We may continue this cycle of ever-increasing completeness until we arrive at the model for **addressing the problem that includes all other problems, which is the model of** pursuing Wisdom put forth in this work.”

Chapter 8, Useful Reasoning, sixth paragraph

Changed “**Hence**” to “**Thus**” in the second sentence.

Added new section title, “**Complete Reasoning,**” at the end of the paragraph.

Moved paragraph and new heading in front of preceding paragraph, thereby making the last two paragraphs in this section paragraphs in a new section.

Chapter 8, Complete Reasoning, first paragraph, footnote

Changed “multiplex reasoning **for pursuing Wisdom**” to “multiplex reasoning of **deciding well**” in the last sentence.

Chapter 8, Complete Reasoning, last paragraph

Changed “**multiplex**” to “**multiple-frame**” in the first sentence.

Changed “**framework**” to “**structure**” in the second sentence.

Chapter 8, Natural Reasoning, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the view of modern biology, living beings cooperate well in order to compete well. Those that seek to cooperate before they seek to compete, to look first for win–win solutions to resource problems before they seek to compete over resources, are **an anomaly**. **In contrast**, from the multiplex view, living beings compete well in order to cooperate well. **They seek to cooperate well in order to make the best use of knowledge in living well**. Only when they lack the means to cooperate well do they compete. Living beings that seek to compete before they seek to cooperate are the special case of beings that have not yet developed the wisdom to do otherwise. Which of these two views is the better view for helping us find problems to solve, hence for explaining the world?”

was changed to:

“From the view of modern biology, living beings cooperate well in order to compete well. Those that seek to cooperate before they seek to compete, to look first for win–win solutions to resource problems before they seek to compete over resources, are **anomalies**. **From** the multiplex view, living beings compete well in order to cooperate well. Only when they lack the means to cooperate well do they compete. Living beings that seek to compete before they seek to cooperate are the special case of beings that have not yet developed the wisdom to do otherwise. Which of these two views is the better view for helping us find problems to solve, hence for explaining the world?”

Chapter 8, Summary, last section

“**Summary**

The spirit of our age concerns breaking unwieldy wholes into parts in order to solve problems better. A major disadvantage of using this process is forgetting to consider the infinitely greater whole. Although definite knowledge of this whole will remain forever beyond our grasp, we must not pass over it in silence. When we expand the scope of the problems we face to the limits of imagination, a structure of invariant values emerges. Understanding the process by which we best progress toward these timeless ends can help us find better problems to solve. We shall not grow wiser before we learn that much that we have done was very foolish.”

was deleted.

Changes in Version 2012.08.27

Acknowledgments, last paragraph

Changed “Statistical Control **“Group”**” to **“Management Control Directorate (Organizational Planning and Statistical Control Divisions)”** in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Deleted the last two sentences: “**This work concerns the way that we tell the way forward. It concerns what lovers of wisdom call *logos*.**”

Preface, seventh paragraph

Changed “the ideal **path**” to “the ideal **way**” in the last sentence.

Preface, sixth paragraph

Changed “**timeless** analogue of **the modern economic cycle of**” to “**information-age** analogue of” in the last sentence.

Preface, seventh paragraph

Changed “the ideal **path**” to “***logos***, the ideal **way**” in the last sentence.

Preface, last paragraph

“**The spirit of our age concerns breaking unwieldy wholes into parts in order to solve problems better. A major disadvantage of using this process is forgetting to consider the infinitely greater whole. Although definite knowledge of this whole will remain forever beyond our grasp, we must not pass over it in silence. When we expand the scope of the problems we face to the limits of imagination, a structure of invariant values emerges. Understanding the process by which we best progress toward these timeless ends can help us find better problems to solve.**”

was changed back to:

“**My hope in writing such a short book is that people will read it more than once.**”

Chapter 1, *Ever More Complete Multiple-Frame Models*, fifth paragraph

Changed “**timeless** technique” to “technique” in the fourth sentence.

Chapter 3, *Three Approaches to Policy*, third paragraph, footnote

Changed “consistent with **a biological** approach” to “**inconsistent with an engineering** approach” in the last sentence.

Moved the footnote to the end of second paragraph.

Chapter 3, *Public Entropy*, first paragraph

Changed “**decision** process” to “process” in the fourth sentence.

Chapter 4, *Learning through Experience*, title

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed title to “*Learning by Doing*.”

Chapter 5, *A Sovereign Rights Story for Pursuing Wisdom*, last paragraph, last footnote

Removed quotation marks from the first sentence.

Changed “**The spirit of our age tends to** undermine” to “Modernism undermines” in the fourth sentence.

Changed “**prevailing attitude**” to “**modern spirit**” in the fifth sentence.

Chapter 5, *Promote Savings for Welfare*, last paragraph, first footnote

Changed “pursuing Wisdom” to “**the pursuit of** Wisdom” in the last sentence.

Chapter 8, *Useful Reasoning*, last paragraph, footnote

Changed “**a carp that glows in the dark can be said to exist if it only exists in the mind of a geneticist who knows how to make fish that glow in the dark**” to “**the means to land two people on the moon and bring them safely back to earth existed at 12 A.M. zero meridian time on January 1, 2000**” in the last sentence.

Chapter 8, *Complete Reasoning*, last paragraph, first footnote

“**Conflicts in our networks of belief occur when beliefs compete for the same function in our system of beliefs. Quine would have us settle these conflicts in the least disruptive way. This is consistent with the way the Europeans solved the problem created by the discovery of what they now call black swans. It is also consistent with choosing the EOQ model over the RTS model as a means of describing how best to set up tools. From the temporal view of modern science, the EOQ model is the more “scientific” model of setting up tools. In contrast, holes in our networks of beliefs emerge from the wholeness of our belief systems. From the “holistic” view of invariant science, the discovery of the usefulness of learning through experience in setting up tools exposes holes throughout our networks of beliefs. We fill these holes with beliefs that are consistent with solving the problems we face by learning through experience.**”

was deleted.

Chapter 8, *Complete Reasoning*, last paragraph, last footnote

“**Quine’s concept of holism emerges from the way we induce general knowledge from experience, but not from the inexhaustibility of knowledge. From this view, *the philosophy of science is philosophy enough*. In contrast, the multiplex concept of holism put forth in this work emerges not only from the way we induce general knowledge from experience, but also from the inexhaustibility of knowledge. It concerns not only**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

the supply but also the demand side of the market for the Truth. From this view, *the philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of pursuing Wisdom. The incompleteness of Quine's concept of holism gave rise to both Morton White's argument with Quine over the scope of holistic pragmatism and Jaegwon Kim's criticism of Quine's epistemology for not having a normative element. (From the multiplex view, the normative element missing from Quine's theory of knowledge is the teleonomic pursuit of the Good.)*"

was changed to:

"From the **multiplex** view, *the philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of pursuing Wisdom. Completeness concerns both the supply and demand sides of the Truth market. From W. V. O. Quine's view, the philosophy of science is philosophy enough. Completeness concerns only the supply side of the Truth market. This shortfall gave rise to both Morton White's dispute with Quine over the scope of holistic pragmatism and Jaegwon Kim's criticism of Quine's epistemology for not having a normative element. It also blinded Quine to the problem of holes in our belief systems. His rule for settling conflicts by choosing the least disruptive alternative would have us choose the EOQ model over the RTS model as a tool for describing how best to set up tools.*"

Chapter 8, end

Summary

The spirit of our age concerns breaking unwieldy wholes into parts in order to solve problems better. A major disadvantage of using this process is forgetting to consider the infinitely greater whole. Although definite knowledge of this whole will remain forever beyond our grasp, we must not pass over it in silence. When we expand the scope of the problems we face to the limits of imagination, a structure of invariant values emerges. Understanding the process by which we best progress toward these timeless ends can help us find better problems to solve. We shall not grow wiser before we learn that much that we have done was very foolish."

was returned. The lack of a closing to the last chapter highlighted the open-ended nature of pursuing Wisdom. However, I deemed the cost of breaking yet another convention was too high.

Appendix, Less is More, last paragraph, footnote, third and fourth sentences

"Just as the motions of a loom weave yarn into cloth, folding and smoothing parts of the line weave knowledge into networks of knowledge-in-use. Regrettably, we do not yet have the concepts we need to think clearly about the structure and dynamics of these networks, which span our nervous systems, our symbolic systems, our organizational systems, and our technological systems."

were deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2012.08.29

Chapter 3, *Public Entropy*, first paragraph, last footnote

“^s From the view of modern science, ‘entropy’ has several meanings that concern disorder, inefficiency, and unpredictability. Some are useful in studying energy and others in studying information. In 1827, James Clerk Maxwell imagined how an imaginary intelligent being, which Lord Kelvin called a “demon,” could convert information into energy by sorting gas molecules by their kinetic energy. In 2010, a team of Tokyo scientists confirmed that it is possible to convert information into energy (Toyabe, S., Sagawa, T., Ueda, M. Muneyuki, E., & Sano, M. “Experimental demonstration of the information-to-energy conversion and validation of the generalized Jarzynski equality,” *Nature Physics*, vol. 6, pp. 988–92). From the multiplex view, the concept of public entropy helps us explain the relation between information and energy in ways that are useful in helping us find problems to solve in pursuing Wisdom.”

was changed to:

“^s From the view of modern science, ‘entropy’ has several meanings. In physics, it is a measure of disorder; in thermodynamics, it is a measure of inefficiency; and in information theory, it is a measure of unpredictability. From the boundlessly pragmatic view of this work, ‘entropy’ has a generic meaning, which is waste in solving the problem that contains all other problems. From this public view, physical entropy is the negation of physical order useful in solving this problem; thermodynamic entropy is the negation of thermodynamic efficiency in solving this problem; and informational entropy is the negation of informational efficiency in solving this problem.”

Appendix, Less is More, footnote

Changed “networks” to “invisible objects” in the last sentence.

Changes in Version 2012.08.30

Acknowledgments, last paragraph

Changed “Grinnell, Iowa” to “Grinnell, Iowa, a “new Jerusalem of the prairie” that was shocked by a major banking scandal in 1904” in the first sentence.

Changed “Management Control Directorate (Organizational Planning and Statistical Control Divisions) of the Army Air Force, who he believed ought to know better” to “Organizational Planning and Statistical Control Divisions of the Army Air Force Management Control Directorate” in the sixth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, first paragraph

Changed “our actions” to “our actions, a not-yet-disproven method of telling the way forward” in the last sentence.

Preface, second to last paragraph

Changed “currently know rather” to “currently know, rather” in the last sentence.

Chapter 2, Invariant Tools for Living Well, last paragraph, footnote

“² The term ‘multiplex view’ comes from biologist Jack Cohen and mathematician Ian Stewart’s book, *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997). Cohen and Stewart describe a recursive evolutionary process that creates the need for ever more complex ways of thinking clearly. What is missing from this work is the symmetry of pursuing Wisdom, hence the convergence of approximate-multiplex mental views toward a transcendental view, which monotheists may call a *God’s eye view*. Note that such convergence occurs only when our ability to think clearly about the world progresses faster than the complexity of the world, and that this complexity emerges not only from the symmetry of nature per se, but also from the broken symmetry of nature, which includes the broken symmetry of pursuing Wisdom. Foolishness makes the task of thinking clearly about the world doubly hard.”

was changed to:

“² The term ‘multiplex view’ comes from biologist Jack Cohen and mathematician Ian Stewart’s book, *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997). Cohen and Stewart describe the evolution of intelligence as a recursive process. What is missing from this work is the symmetry of pursuing Wisdom, hence the convergence of approximate views toward a transcendental view, which monotheists may call a *God’s eye view*.”

Chapter 2, *Pleasure and Pain*, sixth paragraph, footnote, last sentence

“Note that this general definition can accommodate such modern theories as epigenetic development.”

was deleted.

Chapter 2, Profit, first paragraph, footnote, last sentence

“As we shall see, violating our natural right to pursue Wisdom is a recipe for catastrophe.”

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, Contemplating the Way Forward, fifth paragraph, footnote

Changed “theory of **objective truth in the physical sciences**” to “theory of **knowledge**” in the first sentence.

Chapter 3, *Three Approaches to Policy*, second paragraph, last footnote, seventh and eighth sentences

“The process of finding problems to solve is **at least as important as the process of solving problems**. Further, the people best able to find problems are often the people closest to them.”

were changed to:

“The process of finding problems to solve is **not trivial**. Further, the people best able to find problems **and solve** problems are often the people closest to them.”

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, first paragraph, footnote, last two sentences

“**However**, from the multiplex view, we ought to choose the research program that seeks to disprove the beautiful choice, which is that free will exists. This calls for us to act as if **we believe that** free will exists.”

were changed to:

“**F**rom the multiplex view, we ought to choose the research program that seeks to disprove the beautiful choice, which is that free will exists. This **program** calls for us to act as if free will exists.”

Chapter 4, Refining Everyday Thinking, fifth paragraph, footnote, last two sentences

“**Note too that descriptions of the world may have their own logic. A classic example is quantum mechanics, which includes such apparently strange behaviors as objects that must rotate 360 degrees *twice* to return to their initial state.**”

were deleted.

Chapter 4, Refining Deciding Well, first paragraph, footnote, last sentence

“Hidden in theories that describe the world as it is in the process of becoming is a description of **a prescriptive** program: living things pursue the Good.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Hidden in theories that describe the world as it is in the process of becoming is a description of **what drives the system forward. From the multiplex view, this driver is the teleonomic program of all living things to pursue the Good.**”

Chapter 5, Sovereignty, last paragraph, footnote

Changed “pursuing **the boundless factors of pursuing** Wisdom” to “pursuing Wisdom” in the fourth sentence.

Chapter 5, *Lower Trade Barriers*, first paragraph, footnote

Changed “in 1815” to “in 1815 **and refined by David Ricardo in 1817**” in the last sentence.

Chapter 6, *Schweitzer’s Universal Spiritual Need*, last paragraph, footnote

Moved the *Nicomachean Ethics* reference to the end of the first sentence.

Chapter 6, *Einstein’s Twin Warnings*, first paragraph, footnote, last sentence

“**Note that what Einstein calls science is modern science, not invariant science.**”

was deleted.

Chapter 7, *The Grandest Possible Strategy*, first paragraph

Changed “**the story** of pursuing Wisdom” to “**that** of pursuing Wisdom” in the last sentence.

Changes in Version 2012.08.31

Acknowledgments, second paragraph

Changed “Douglas” to “Douglas**s**” in the seventh sentence.

Acknowledgments, last paragraph

Changed “sons of **early-twentieth-century** bankers” to “sons of bankers” and “**was shocked by a major banking scandal in 1904**” to “**had been shaken by the scandalous collapse of its most prominent and trusted bank**” in the first sentence.

Changed “three” to “three **sons of Grinnell**” in the second sentence.

Preface, second to last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “on what they need” to “what they need” in the last sentence.

Preface, last paragraph, end

Added the sentences:

“Despite its simple style, most people will find it challenging. Those trained to classify reason will find it especially challenging. They have more to unlearn. Many will want to dismiss it as a timeless mishmash, as a disordered collection of ideas from all ages. It has order, but not the order that they have learned to expect. The reward for learning this new order, which is knowledge of how to find better problems to solve, is well worth the effort.”

Chapter 6, *Heroic Death*, second paragraph

Changed “satisfy” to “pursue” in the last sentence.

Changes in Version 2011.09.03

Acknowledgments, last paragraph

Changed “most prominent and trusted bank” and “oldest and most trusted bank” in the first sentence.

Chapter 1, Steps for Building Multiple Frame Models , last paragraph, footnote, end

Added the sentences:

“According to the theory of language underlying this technique, we ought to be like pilots flying solely on instruments. This “instrumental” theory of how we ought to use language contradicts the theory that we ought to use language to picture the world exactly as it is. According to the most modern form of this “pictorial” theory of language, which is that of the early work of Ludwig Wittgenstein, we ought to be like painters using a *camera obscura* to record a scene well. For more on the difference between the instrumental and pictorial theories of language, see the last chapter.”

Chapter 2, Invariant Tools for Pursuing Wisdom, last paragraph

Changed “the multiple-frame mental view” to “the “view” of a multiple-frame model” in the last sentence.

Chapter 2, Invariant Tools for Pursuing Wisdom, last paragraph, footnote, last two sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Cohen and Stewart describe the evolution of intelligence as a recursive process. **What is missing from this work is the symmetry of pursuing Wisdom, hence the convergence of approximate views toward a transcendental view, which monotheists may call a God’s eye view.**”

were changed to:

“**In this book**, Cohen and Stewart describe the evolution of intelligence as a recursive process, **but** miss the symmetry of deciding well.”

Chapter 5, Tax Well, first paragraph

Changed “**a person** who pursues” to “**people** who pursue” in the last sentence.

Chapter 5, Liberalism, third paragraph

Changed “**Nothing**” back to “**In the long run, nothing**” in the last sentence.

Chapter 6, Worldly Benefits of Detachment, first paragraph

Changed “**the world and life**” to “**them**” in the last sentence.

Chapter 8, Useful Reasoning, last paragraph, footnote, first four sentences

“Students of Western thought may better understand the distinction between logic, dialectics, **and Reason** by studying Ludwig Wittgenstein’s conversion from a picture theory of language, **which he** based on **an explicitly** temporal view of the world, to an instrumental theory of language, **which he** based on **a biological concept of everyday thinking**. **Wittgenstein** came to believe that the goal of understanding language was to **help people live good lives**. **In his words, it was to** “show the fly the way out of the fly-bottle.” **In contrast to this biological goal, the public goal of understanding language is to help people pursue Wisdom.**”

were changed to:

“Students of Western thought may better understand the distinction between logic **and** dialectics by studying Ludwig Wittgenstein’s conversion from a picture theory of language based on a temporal view of the world to an instrumental theory of language based on **the timeless end of living well**. **In his words, he** came to believe that the goal of language was to “show the fly the way out of the fly-bottle.””

Chapter 8, Summary, first paragraph, last sentence

Inserted the following sentence:

“**Perfection of means and confusion of ends characterize our age.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix, *Less is More*, first paragraph, footnote

Changed “these invisible objects” to “the invisible objects **in these networks**” in the last sentence.

Changes in Version 2011.09.05

Chapter 5, *A Sovereign Story for Pursuing Wisdom*, first paragraph

Changed “**civil faith, what** set of publicly proclaimed and practiced beliefs **beyond reason,**” and “set of publicly proclaimed and practiced beliefs” in the last sentence.

Chapter 6, *Heroic Death*, last paragraph

Changed “or **do we learn**” to “or” in the second sentence.

Chapter 6, *A Common Timeless End*, first paragraph, fifth sentence

“**Which of these views is true currently is a matter of faith, a matter of belief beyond reason.**”

was deleted.

Chapter 7, *A Normal Anomaly*, last paragraph

Changed “game theory” to “**modern** game theory” in the last sentence.

Changes in Version 2011.09.10

Acknowledgments, last paragraph

Changed “from **Grinnell, Iowa,**” to “from ” and “**oldest and** most trusted bank” to “most trusted bank **in 1904**” in the first sentence.

Changed “Grinnell” to “Grinnell, **Iowa**” in the second sentence.

Preface, sixth paragraph

Changed “**the division of labor and the expansion of market size**” to “**Adam Smith’s virtuous circle**” in the last sentence.

Preface, last paragraph, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The reward for learning this new order, which is knowledge of how to find better problems to solve, is well worth the effort.”

was deleted.

Chapter 1, *The EOQ/RTS Example*, fourth paragraph

Changed “quickly” to “efficiently” in the sixth sentence (2 occurrences).

Chapter 1, *The Need for Timeless Frames*, first paragraph

Changed “expensive” to “costly” in the first sentence of the first bullet point.

Changed “produce good quality” to “make good quality products” in the last sentence of the first bullet point.

Changed “things” to “products” in the first and last sentences of the second bullet point (2 occurrences).

Inserted the following sentence into the third bullet point:

“Larger products are more costly to package, transport, store, and recycle.”

Chapter 1, *Temporal versus Invariant Values*, second paragraph

Changed “greater than ourselves” to “infinitely greater than ourselves” in the last sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, first paragraph

Added the following footnote:

¹³ The pursuit of living well concerns our internal (teleonomic) programming. Given the critical importance of our need for spiritual wholeness and the difficulty of testing our beliefs about this need, we ought to consider this need separately. Among other things, this will allow us to reconcile materialist and dualist means of satisfying this need.”

Chapter 2, *Three Common Mistakes*, second paragraph

Changed “greater than ourselves” to “infinitely greater than ourselves” in the last sentence.

Chapter 3, *Three Approaches to Policy*, third paragraph, second to last sentence

Added the following footnote:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“ Note the modern link between the timeless approach to overcoming constraints and the biological approach to policy. Implicit in this link is the belief that the natural timeless end is the timeless end of living well (the Good), which will remain forever beyond our understanding. From the multiplex view, the natural timeless end is the timeless end of deciding well (Wisdom), which all living beings naturally pursue, some more successfully than others. Purveyors of modern thought have replaced the idea of pursuing Wisdom with the idea of Darwinian evolution. They have replaced the holistic idea of competing well in order to cooperate well with the reductionist idea of cooperating well in order to compete well. For more on this, see the last two chapters.”

Chapter 5, *The Explicit Experiment*, last paragraph

“How do the people of the United States who think deeply about governing well reconcile the idealistic story of the Declaration with the pragmatic story of the Constitution? One popular way is to claim that the Declaration story concerns justice and the Constitution story concerns legality. This affirms a theistic source of justice higher than the social contract. Another popular way is to claim that the Declaration story has become ritual and non-theistic through long customary use. This denies a theistic source of justice higher than the social contract. From the multiplex view, both of these ways violate the spirit, if not the letter, of the First Amendment. The first way establishes a state religion based on the pursuit of theistic justice and the second establishes a state religion based on the pursuit of social justice.”

was changed to:

“How do the people of the United States who think deeply about governing well reconcile the idealistic story of the Declaration with the pragmatic story of the Constitution? One popular way is to claim that the Declaration story has become ritual and non-theistic through long customary use. This denies a source of justice higher than the social contract. Another popular way is to claim that the Declaration story concerns justice and the Constitution story concerns legality. To people who believe that the Declaration story concerns theistic rather than natural religion, this affirms a theistic source of justice higher than the social contract. From the multiplex view, both of these ways violate the spirit, if not the letter, of the First Amendment. The first way establishes a state religion based on the pursuit of social justice and the second establishes a state religion based on the pursuit of theistic justice.”

Chapter 5, *The Explicit Experiment*, last paragraph, footnote

Changed “mortal danger” to “mortal danger by promoting policies that go beyond the natural religion of the Declaration of Independence” in the last sentence.

Chapter 5, *A Sovereign Story for Pursuing Wisdom*, last paragraph

Changed “sovereign rights story” to “story” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “(the Good)” to “(a whole life lived well)” in the second sentence of the first footnote.

Chapter 6, A Common Timeless View, first paragraph

Changed “From both,” to “From both views,” in the fourth sentence.

Chapter 7, Boyd’s Grand Strategy, last paragraph, end

Added the following footnote:

“¹⁶ Boyd saw self-similar patterns in the way we compete to live well. He wanted to capture these patterns in a universal model that included learning-by-doing. For this universal model to be logically complete, it must apply to itself. For it to apply to itself, it must be a less than perfect approximation of itself, which is a logical contradiction. For more on logical completeness and consistency, see the next chapter.”

Chapter 8, Complete Reasoning, first paragraph

Changed “cycle” to “thought-experiment cycle” in the last sentence.

Chapter 8, Complete Reasoning, last paragraph

“The multiple-frame model of pursuing Wisdom consists of an unknown number of incomplete frames. In theory, it provides us with a structure for thinking about not only the conflicts in our networks of beliefs, but also all holes in these networks. Hence, we may call it reasonably complete.⁵”

“⁵ From the multiplex view, *the philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of pursuing Wisdom*. Completeness concerns both the supply and demand sides of the Truth market. From W. V. O. Quine’s view, *the philosophy of science is philosophy enough*. Completeness concerns only the supply side of the Truth market. This shortfall gave rise to both Morton White’s dispute with Quine over the scope of holistic pragmatism and Jaegwon Kim’s criticism of Quine’s theory of knowledge for not having a normative element. It also blinded Quine to the problem of holes in our belief systems. His rule for settling conflicts by choosing the least disruptive alternative would have us choose the EOQ model over the RTS model as a tool for describing how best to set up tools.”

was changed to:

“Multiple-frame models of pursuing Wisdom provide us with structures for thinking about not only conflicts but also holes in our networks of beliefs. Hence, we may call them reasonably complete.⁵”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“*Consider the holism of W. V. O. Quine. From Quine’s view, the philosophy of science is philosophy enough. Our concept of completeness concerns the supply side of the Truth market. We see conflicts in our belief systems. Our rules for settling these conflicts (prefer easy to accept and easy to use models), would have us choose the EOQ over the RTS model as a tool for describing how best to set up tools. Now consider the holism of the multiple-frame model of pursuing Wisdom. From the multiplex view, the philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of pursuing Wisdom. Our concept of completeness concerns both the supply and demand sides of the Truth market. We see holes as well as conflicts in our belief systems. We prefer the RTS to the EOQ model as a tool for describing how best to set up tools. Further, we believe that Morton White was right to criticize Quine’s pragmatism for being too narrow and that Jaegwon Kim was right to criticize Quine’s theory of knowledge for not having a normative element.*”

Chapter 8, Natural Reasoning, last paragraph

Changed “view” to “**reductionist** view” in the third sentence.

Changed “**multiplex** view” to “**holistic** view of this work” in the last sentence.

Changes in Version 2011.09.12

Chapter 3, *Three Approaches to Policy*, third paragraph, footnote

“*Note the modern link between the timeless approach to overcoming constraints and the biological approach to policy. Implicit in this link is the belief that the natural timeless end is the timeless end of living well (the Good), which will remain forever beyond our understanding. From the multiplex view, the natural timeless end is the timeless end of deciding well (Wisdom), which all living beings naturally pursue, some more successfully than others. Purveyors of modern thought have replaced the idea of pursuing Wisdom with the idea of Darwinian evolution. They have replaced the holistic idea of competing well in order to cooperate well with the reductionist idea of cooperating well in order to compete well. For more on this, see the last two chapters.*”

was changed to:

“*Note the modern link between the timeless approach to overcoming constraints and the biological approach to policy. Implicit in this relation is the belief that the natural timeless end is the timeless end of living well. From the multiplex view, the natural timeless end is the timeless end of deciding well, which all living beings naturally pursue, some much more successfully than others. Purveyors of modern thought have replaced ancient stories of pursuing the timeless end of deciding well (e.g., pursuing the Tao, Sophia, or Logos) with the modern story of survival of the fittest. They have replaced the holistic idea of competing well in order to cooperate well with the*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

reductionist idea of cooperating well in order to compete well. For more on this, see the last two chapters.”

Chapter 3, The Elephant in the Room, first paragraph

Changed “multiple-frame model” to “multiple-frame model of pursuing Wisdom” in the first sentence.

Chapter 3, The Elephant in the Room, third paragraph

“The essential theological explanation of this coincidence is as simple and straightforward. The Creator created us with the need to seek the Good, the Truth, Justice, Wisdom, and Beauty. We pursue these invariant values by deciding well. We collectively refine our means of deciding well by deciding well over time. Deciding well and our understanding of deciding well co-evolve.”

was changed to:

“The essential theological explanation of this coincidence is as simple and straightforward. The Creator created what we call the laws of nature. These include the need for life to survive and thrive. Life flourishes by deciding well. As people, we collectively refine our means of deciding well by deciding well over time. Deciding well and our understanding of deciding well co-evolve.”

Chapter 7, A Natural Anomaly, last paragraph

Merged this paragraph with the preceding paragraph.

Changes in Version 2011.09.15

Title Page, subtitle

Changed “An Invariant View of Deciding Well” to “An Invariant Approach to Deciding Well.”

Chapter 1, Useful Frames, third paragraph, footnote

Changed “Hence” to “Thus” in the last sentence.

Chapter 1, The EOQ/RTS Example, sixth paragraph

Changed “American firms” to “American firms did” in the fourth sentence.

Chapter 1, The Need for Timeless Frames, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “timeless frame” to “timeless frame of deciding well” and “temporal one” to “temporal frame of producing well” in the third sentence.

Changed “themselves” to “deciding well” in the second sentence of the first bullet point.

Chapter 1, *The Need for Timeless Frames*, last paragraph

Changed “temporal versus invariant values” to “the values we use to help us decide” in the last sentence.

Chapter 1, Temporal versus Invariant Values, title

Changed title to “Values.”

Chapter 1, Values, fifth paragraph, footnote

Changed “reason (means independent of fact)” to “meanings” in the first sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, last paragraph, footnote

“The technique of reducing complex wholes to multiple frames opens more of our ability to recognize patterns to reason, thereby helping us better integrate these two abilities. According to the theory of language underlying this technique, we ought to be like pilots flying solely on instruments. This “instrumental” theory of how we ought to use language contradicts the theory that we ought to use language to picture the world exactly as it is. According to the most modern form of this “pictorial” theory of language, which is that of the early work of Ludwig Wittgenstein, we ought to be like painters using a *camera obscura* to record a scene well. For more on the difference between the instrumental and pictorial theories of language, see the last chapter.”

was changed to:

“The technique of reducing complex wholes to multiple frames opens more of our ability to recognize patterns to reason, thereby helping us better integrate these two abilities. According to the theory of language underlying this technique, we ought to be like pilots flying on instruments. This “instrumental” theory of how we ought to use language contradicts the theory that we ought to use language to picture the world exactly as it is. According to the most modern form of this “pictorial” theory of language, which is that Ludwig Wittgenstein’s 1921 work, *Tractatus Logico-Philosophicus*, we ought to be like painters using a *camera obscura* to record a still-life scene well. For more on the difference between the instrumental and pictorial theories of language, see the last chapter.”

Chapter 1, *Ever More Complete Multiple-Frame Models*, sixth paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In theory, each new frame we add to the multiple-frame model of pursuing Wisdom yields a better model for pursuing Wisdom. In practice, the marginal costs of using models that are more complete can outweigh the marginal benefits of using **these models**. Just as classical mechanics is often a good enough tool for helping us solve problems, a multiple-frame model of pursuing Wisdom that includes only the Good, the Truth, Justice, and Beauty is often a good enough tool for helping us find problems to solve.”

was changed to:

“**Logical completeness is a means to efficiency, not an end in itself. In seeking to disprove the proposition that all crows are black, we ought to search for crows that are not black. To search for non-black things that are crows would be a foolish use of resources.** In theory, each new frame we add to the multiple-frame model of pursuing Wisdom yields a better model for pursuing Wisdom. In practice, the marginal costs of using models that are more complete can outweigh the marginal benefits of using **them**. Just as classical mechanics is often a good enough tool for helping us solve problems, a multiple-frame model of pursuing Wisdom that includes only the Good, the Truth, Justice, and Beauty is often a good enough tool for helping us find problems to solve.”

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph

“**The most** obvious benefit of this multiple-frame approach is that it allows us to use more of what we know about the world than any single-frame approach does. A less obvious benefit is that it provides us with a more robust means of learning by doing. Like the Toyota system, it helps us break down overwhelmingly complex problems into problems we can solve.”

was changed to:

“**Invariant Values**

An obvious benefit of this multiple-frame approach to deciding well is that it allows us to use more of what we currently know about the world than any single-frame approach does. A less obvious benefit is that it provides us with a more robust means of learning by doing. Like the Toyota system, it helps us break down overwhelmingly complex problems into problems we can solve. **Another less obvious benefit is that it extends the invariance of pursuing the timeless end of living well to pursuing all boundless factors of deciding well. The boundless factors of deciding well are the values we need to best solve the problem that contains all other problems.¹⁶ To choose other than these invariant values is to choose to aim at something less than Wisdom. To choose other than these values is to choose to decide foolishly.**”

“¹⁶ Note that we can be more certain about which *approaches* are best than we can about which *methods* are best. Consider the problem of determining the value of π . We can be more certain that the recursive approach to determining the value of π best solves this problem than we can that we have found the best method of solving it. Now consider the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

problem of pursuing the timeless end of believing well. We can be more certain that the multiple-frame approach to deciding well best solves this problem than we can that we have found the best method of solving it. As we shall see, Kurt Gödel's belief in an *a priori* approach to science was ahead of its time.”

Chapter 3, *Three Approaches to Policy*, third paragraph, footnote

Changed “pursuing the *Tao*, *Sophia*, or *Logos*” to “following the *Tao* or *Logos*” in the fourth sentence.

“⁵ Note the modern link between the timeless approach to overcoming constraints and the biological approach to policy. Implicit in this link is the belief that the natural timeless end is the timeless end of living well (*the Good*), which will remain forever beyond our understanding. From the multiplex view, the natural timeless end is the timeless end of deciding well (*Wisdom*), which all living beings naturally pursue, some more successfully than others. Purveyors of modern thought have replaced the idea of pursuing *Wisdom* with the idea of *Darwinian evolution*. They have replaced the holistic idea of competing well in order to cooperate well with the reductionist idea of cooperating well in order to compete well. For more on this, see the last two chapters.”

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, last paragraph

Changed “know about physics” to “believe we know” in the third sentence.

Chapter 5, *Tax Well*, first paragraph

Changed “Hence” to “Thus” in the last sentence.

Chapter 5, *Liberalism*, fourth paragraph

“Unlike invariant liberalism, these two temporal forms of liberalism use the temporal concept of excellence in means to help us find problems to solve. As we saw in the EOQ/RTS example, this tends to blind us to learning. It also tends to blind us to the problem of embedding mistakes into our networks of knowledge-in-use, which not only slows progress but also leads to debacles, the sudden release of large amounts of “frozen” stress.”

was deleted.

Chapter 7, *The Scope of Competing Well*, first paragraph

Changed “none of us is” to “all of us are” in the second sentence.

Chapter 8, *Useful Reasoning*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “language” to “**his later work in the philosophy of language**” in the second sentence.

Chapter 8, Complete Reasoning, first paragraph, last sentence

“**We may continue this thought-experiment cycle** of ever-increasing completeness **until we arrive at the model for** addressing the problem that **includes** all other problems, which is the multiple-frame model of pursuing Wisdom **put forth in this work.**”

was changed to:

“**To prove that this model is complete, we need a still more complete model. At the limit of this process** of ever-increasing completeness **are models of** the problem that contains all other problems, which is the **problem that** multiple-frame models of pursuing Wisdom **address.**”

Chapter 8, Complete Reasoning, second paragraph, footnote

Changed “**pragmatism**” to “**philosophy**” and “**Quine’s theory of knowledge**” to “**it**” in the last sentence.

Changes in Version 2011.09.20

Acknowledgments, second paragraph

Changed “**career** to **choose**” to “to **do**” in the seventh sentence.

Preface, fourth paragraph

Changed “**model of**” to “**multiple-frame approach to**” in the first sentence.

Changed “**model**” to “**approach**” in the second.

Chapter 1, *The EOQ/RTS Example*, fourth paragraph

Changed “**We may model** rapid tool setting **by combining**” to “**The** rapid tool setting **model combines**” in the first sentence.

Changed “**model**” to “**problem**” in the fourth sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, fourth paragraph

Changed “**simple model**” to “**template**” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**Extending** this **model** to **all** people” to “**Applying** this **template** to **people** pursuing Wisdom” and “**periods in pursuing Wisdom**” to “**periods**” in the second sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph, footnote

Changed “**be a foolish use of**” to “**waste**” in the third sentence.

Changed “**the** multiple-frame model” to “**a** multiple-frame model” in the fourth sentence.

Added the following sentence to the end of the footnote: “**For more on logical completeness, see the last two chapters.**”

Chapter 1, *Values*, fourth paragraph

Changed “**induce the belief**” to “**believe**” in the sixth sentence.

Inserted the following sentence after the sixth sentence:

“**To believe we can is to ignore the possibility that believing that all marbles in the urn are white introduces the possibility of error into our networks of knowledge in use.**”

Moved the remaining sentences to the next paragraph.

Chapter 1, *Invariant*, first paragraph

Changed “**pursuing** the timeless end of living well to pursuing all boundless factors” to “**pursuing** the timeless end of living well to pursuing all boundless factors” in the fourth sentence.

Chapter 2, *Invariant Tools for Deciding Well*, first paragraph

Changed “**model of** pursuing Wisdom” to “**approach to** pursuing Wisdom” in the third sentence.

Chapter 2, *Invariant Tools for Living Well*, last paragraph

Changed “**a** multiple-frame **model of**” to “**the** multiple-frame **approach to**” in the last sentence.

Chapter 2, *A Strategy for Learning Well*, first paragraph

Changed “pursue this virtuous circle **well** by deciding well using the multiple-frame **model of**” to “**best** pursue this virtuous circle by using the multiple-frame **approach to**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, Pursuing the Ring of Truth, first paragraph

Changed “**model of** pursuing Wisdom” to “**approach to** pursuing Wisdom” in the first sentence.

Chapter 3, Pursuing the Ring of Truth, second paragraph

Changed “**model of** pursuing Wisdom” to “**approach to** pursuing Wisdom” in the third sentence.

Chapter 3, *Three Approaches to Policy*, first paragraph

Changed “**model of** pursuing Wisdom” to “**approach to** pursuing Wisdom” in the second sentence.

Chapter 3, *Three Approaches to Policy*, last paragraph

Changed “**deciding well** using the multiple-frame **model of**” to “using the multiple-frame **approach to**” in the fourth sentence.

Chapter 3, The Elephant in the Room, first paragraph

Changed “**deciding well** using the multiple-frame **model of**” to “using the multiple-frame **approach to**” in the first sentence.

Chapter 4, Refining Everyday Thinking, last paragraph, footnote

Changed “Kuhn” to “**The modern scientists** Kuhn **studied**” in the fourth sentence.

Chapter 4, *Two Types of Ignorance*, first paragraph

Changed “**seeking to rid ourselves of ever more ignorance**” to “**pursuing the timeless end of believing well**” in the third sentence.

Chapter 4, *Two Types of Ignorance*, second paragraph

“**There exist extremes in which this method of testing models does not work.** At the largest **problem-scale** level there is nothing left to learn, **thus** no need for models that help us predict or explain. **About this level, of which we can speak only in terms that we define tautologically, we can say nothing that is useful in pursuing Wisdom.**”

was changed to:

“At the largest level **of abstraction that we can imagine, the level of transcendent ends,** there is nothing left to learn, **hence** no need for models that help us predict or explain on this level.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *Two Types of Ignorance*, last paragraph

“At the smallest possible problem-scale level, we have no need to find problems to solve on a smaller problem-scale level, hence no need to explain causation. All of our ignorance on this level is in the form of uncertain predictions. For example, if the problem-scale level of quantum mechanics is the smallest possible problem-scale level, we have no need to find problems to solve on a smaller problem-scale level, hence no need to explain causation on the level of quantum mechanics. On the other hand, if the problem-scale level of quantum mechanics is not the smallest possible problem-scale level, we have a need to find problems to solve on a smaller level, hence the need to explain causation on the level of quantum mechanics. From a hidden-variables view of quantum mechanics, we ought to search smaller problem-scale levels for models that explain causation on the level of quantum mechanics. From a decision-oriented view of quantum mechanics, we ought to search smaller problem-scale levels for models that both explain causation on the level of quantum mechanics *and best help us pursue Wisdom*. More than one explanation may fit what we can sense.⁴ We ought to choose the explanation that best helps us pursue Wisdom.⁵”

“⁴ In philosophical terms, facts are theory-laden and theories that we use to explain are underdetermined by facts.”

was changed to:

“At the smallest level of abstraction that we can imagine, we cannot explain causation at a lower level. From the view of the Copenhagen class of interpretations of quantum mechanics, quantum mechanics is the lowest level of abstraction that we can imagine. Searching for models that explain causation on the level of quantum mechanics at a lower level is a waste of resources. From the view of the hidden-variables class, we can imagine levels of abstraction lower than the level of quantum mechanics. Searching for models that explain causation on the level of quantum mechanics at a lower level may not be a waste of resources. From the view of the decision class, we ought to search lower levels for models that explain causation on the level of quantum mechanics *wisely*. More than one explanation may fit what we can sense.⁴ We ought to choose among these the explanation that best helps us pursue Wisdom.⁵”

“⁴ In philosophical terms, (theory-laden) facts underdetermine the theories that we use to explain causation.”

Chapter 4, Useful Reminders, first paragraph, last sentence

“In theory, it also calls for us to consider these timeless ends in even our smallest decisions.”

was deleted.

Chapter 4, Useful Reminders, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “this approach” to “the multiple-frame approach to pursuing Wisdom” in the second sentence.

Chapter 5, *A Sovereign Story for Pursuing Wisdom*, second paragraph

Changed “model, the multiplex view” to “template, the multiple-frame approach to pursuing Wisdom” in the first sentence.

Chapter 5, Public Policies, first paragraph, second and third sentences

“One key factor in deciding well is the freedom to decide. Sixty years ago, F. A. Hayek used the simple fact that we are not able to express much useful knowledge to explain why people closest to problems ought to be free to decide what to do.¹² Only people closest to problems can use the knowledge that they are not able to express.”

was changed to:

“We are not able to express much useful knowledge. Only people closest to problems can use the knowledge that they are not able to express. To use this knowledge, people closest to problems need to be free to decide what to do.¹²”

Chapter 6, A Common End, first paragraph

Changed “deciding well using the multiple-frame model of pursuing Wisdom” to “the multiple-frame approach to pursuing Wisdom” in the first sentence.

Changed “view of deciding well using the multiple-frame model of pursuing Wisdom” to “view” in the second sentence.

Chapter 8, Useful Reasoning, last paragraph

Changed “decide well using the multiple-frame model of” to “use the multiple-frame approach to” in the first sentence.

Changed “all boundless factors of pursuing Wisdom” to “timeless ends” in the first sentence.

Changed “deciding well using the multiple-frame model of” to “using the multiple-frame approach to” in the third sentence.

Chapter 8, Complete Reasoning, first paragraph, footnote

Changed “multiplex model of pursuing Wisdom” to “multiple-frame approach to pursuing Wisdom” in the second sentence.

Chapter 8, Complete Reasoning, second paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “multiple-frame **model of** pursuing Wisdom” to “multiple-frame **approach** to pursuing Wisdom” in the fifth sentence.

Changes in Version 2011.09.24

Acknowledgments, last paragraph

Changed “Jerusalem **of the prairie**” to “Jerusalem” in the first sentence.

Changed “secretaries” to “secretaries **(1949–59)**” in the third sentence.

Changed “Directorate” to “Directorate **(1942–6)**” in the fifth sentence.

Preface, third paragraph, second through fifth sentences

“Over time, we collectively learn that **(1) we ought to pursue factors of deciding well only to the point that they are useful to us; (2) there exist universally useful and inexhaustible factors of deciding well that we can never have in excess; and (3) the endless pursuits of all of these “boundless factors” intertwine to form a single endless pursuit. The first two of these lessons are widely known. The third calls for a formal argument:**”

were changed to:

“Over time, we collectively learn that there exist universally useful and inexhaustible factors of deciding well that we can never have in excess. **Further, we learn that** the endless pursuits of all of these “boundless factors” intertwine to form a single endless pursuit:”

Chapter 1, *Building Multiple-Frame Models*, last paragraph

Changed “**both**” to “**our current beliefs about**” in the first sentence.

Changed “**allows us to think about complex phenomena more clearly**” to “**provides us with a more robust means of learning by doing. Like the Toyota system, it helps us break down overwhelmingly complex problems into problems we can solve**” in the last sentence.

Changed “on instruments” to “on instruments **through a storm front**” in the second sentence of the footnote.

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “beliefs about the boundless factors of **deciding well**” to “**current** beliefs about the boundless factors of **pursuing Wisdom**” and “rings true” to “rings true **with what we currently believe we know about pursuing Wisdom**” in the third sentence.

Changed “found” to “found **what appears to us to be**” in the last sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph, footnote, first two sentences

“**Logical completeness is a means to efficiency, not an end in itself. In seeking to disprove the proposition that all crows are black, we ought to search for crows that are not black. To search for non-black things that are crows would be a foolish use of resources.**”

were moved to in front of the last sentence.

Chapter 1, *Invariant Values*, first paragraph, second through fifth sentences

“A less obvious benefit is that it **provides us with a more robust means of learning by doing. Like the Toyota system, it helps us break down overwhelmingly complex problems into problems we can solve. Another less obvious benefit is that it extends the invariance of the timeless end of living well to all boundless factors of deciding well. The boundless factors of deciding well are the values we need to best solve the problem that contains all other problems.**”

were changed to:

“A less obvious benefit is that it extends the invariance of the timeless end of living well to all boundless factors of deciding well. The boundless factors of deciding well are the values we need **best** to solve the problem that contains all other problems.”

Chapter 1, *Invariant Values*, first paragraph, footnote, last sentence

“**As we shall see, Kurt Gödel’s belief in an *a priori* approach to science was ahead of its time.**”

was deleted.

Chapter 3, *Three Approaches to Policy*, first paragraph

Changed “**multiplex** view of” to “view of” in the second sentence.

Chapter 3, *Public Entropy*, first paragraph, footnote

Changed “**has a generic meaning, which is**” to “means” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**From this public view, physical entropy**” to “**Physical entropy**” in the last sentence.

Chapter 4, *Two Types of Ignorance*, last paragraph, last footnote

“⁵ From the multiplex view, **invariant science** is a self-similar, self-referential process **that includes** its own metascience.”

was changed to:

“⁵ From the multiplex view, **pursuing Wisdom** is a self-similar, self-referential process. **Invariant science contains** its own metascience.”

Chapter 7, *A Normal Anomaly*, last paragraph

“To understand why these expert **players** reacted to Hofstadter’s game as they did, one must understand something of modern game theory. Game theory is the analytical study of strategic situations. To draw conclusions from models of strategic situations, modern game theorists make **two sorts of** simplifying assumptions. **The first is that the game occurs only once. This yields temporal models. The second is that the same game occurs repeatedly. This yields timeless models that are symmetric in a way that we can use the knowledge that we learn from each game. Hofstadter created a clever anomaly to modern game theory by creating a temporal model that is symmetric in a way that we cannot use the knowledge that we learn from each game. In doing so, he built a model that does not fit neatly into modern game theory. It falls between the cracks of modern game theory.**”

was changed to:

“To understand why these experts reacted to Hofstadter’s game as they did, one must understand something of modern game theory. Game theory is the analytical study of strategic situations. To draw conclusions from **their** models, **modern** game theorists build their models in ways **that restrict learning by doing. One way they do this is to assume that the situation concerns a game that occurs once. This excludes all learning by doing. Another way they do this is to assume that the situation involves recurring symmetrical games. This excludes all learning except learning from playing symmetrical games. Hofstadter created a model in which there are symmetrical games in a situation that occurs only once. This model does not fit neatly into modern game theory.**”

Chapter 7, *A Revolutionary Anomaly*, first paragraph

“**Martin Gardner’s claim that he was unable to behave rationally and Hofstadter’s claim that his game shows the superiority of what he calls *superrational societies*, societies in which people compete well by considering symmetry before choosing a strategy,⁸ hint at**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

a far greater anomaly. Considering symmetry in strategic situations does not fit current models of reasoning well. It falls between the cracks of modern reason.”

was changed to:

“Hofstadter believed that people ought to look for common ground, for symmetries on which to cooperate. He imagined that somewhere in the universe there exist *superrational societies*, societies in which people compete well by finding such common ground.⁸”

Chapter 7, *A Revolutionary Anomaly*, second paragraph

“From the multiplex view, playing games well calls for a grander concept of reason. Playing games well is a matter of choosing the best frame for what we perceive is the given strategic situation. We best frame this problem by making the problem of framing this problem part of the problem we are trying to solve. This creates an endless loop: How do we choose the best frame? We choose the frame that best helps us decide well. How do we choose the best frame for choosing the best frame? We choose the frame that best helps us decide well. How do we choose the best frame for choosing the best frame for choosing the best frame? We choose the frame that best helps us decide well... Regardless of how many times we cycle through this endless loop, the answer is always that we choose the frame that best helps us decide well. From a purely logical view, this gets us nowhere. Each time we cycle through the loop, we end up back at our starting point. However, from the multiplex view, each time we cycle through this loop, we expand the scope of the problem we are seeking to solve. This is consistent with Dwight Eisenhower’s maxim: “If a problem cannot be solved, enlarge it.” Taking this advice to its logical limit, we end with the problem that contains all other problems. We best address this universal problem by pursuing Wisdom. Pursuing Wisdom calls for us to consider the symmetry of pursuing Wisdom before choosing a strategy. It calls for a grander concept of reason, a concept of reason in which all problems are part of the problem that contains all problems. People who base their decisions on temporal values, values based on the false belief that it is possible to separate problems from the problem that contains all other problems, act irrationally.”

was changed to:

“From the multiplex view, Hofstadter was right to have people look for common ground, but he failed to find it in the symmetry of pursuing Wisdom. Pursuing Wisdom calls for a grander concept of reason, a concept of reason in which all problems are part of the problem that contains all problems. People who base their decisions on temporal values, values based on the false belief that it is possible to separate problems from the problem that contains all other problems, act irrationally.”

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote, last sentence

Inserted the sentences:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Boyd addressed this problem by embracing a pragmatic approach to believing well based on what we currently believe we know about the world. We see this sophistry most clearly in his essay, *Destruction and Creation*.”

Chapter 8, Summary, first paragraph

Changed “whole” to “whole, which tends to blind us to the wisdom of learning by doing” in the second sentence.

Changes in Version 2011.09.26

Chapter 3, Contemplating the Way Forward, third paragraph

Changed “simple recursive process” to “recursive process that ends” in the second sentence.

Changes in Version 2011.09.30

Title Page, subtitle

Changed “An Invariant Approach to Deciding Well” to “An Invariant Strategy for Deciding Well.”

Chapter 1, Choosing Frames Well, last paragraph, last two sentences

“We cannot solve this infinitely large problem. However, we can address it by making it part of the problem of deciding well.”

were changed to:

“We cannot solve this infinitely large problem, but we can address it by making it part of the problem of deciding well. In the words of Dwight Eisenhower, “If a problem cannot be solved, expand it.”

Chapter 1, Values, fourth paragraph

Changed “. However,” to “, but” in the fifth and sixth sentences.

Chapter 1, Values, fourth paragraph, last sentence

“To believe we can is to ignore the possibility that believing that all marbles in the urn are white introduces the possibility of error into our networks of knowledge in use.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Chapter 1, Values, last paragraph

Changed “**However**” to “**In contrast**” in second sentence.

Chapter 3, *Three Approaches to Policy*, first paragraph

Changed “**false** claim” to “claim” in the third sentence.

Chapter 3, *Three Approaches to Policy*, last paragraph

Changed “using the multiple-frame” back to “**deciding well** using the multiple-frame” in the fourth sentence.

Chapter 3, *Public Order*, last sixth paragraphs

“We may use an example of a cycling race to imagine the results of each of these types of public order. Imagine a team time trial in which we measure excellence by the average time it takes twelve team members to complete a two hundred kilometer course. During this event, team members can interact only with one another and not with members of other teams. Cycles must have two wheels, cannot have a seat closer to the ground than the top of the largest wheel, cannot have windscreens of any type, and cannot exceed two meters in length.

“A team taking an engineering approach would reduce the problem of ordering themselves to a set of problems that they can address using what they currently know. The simplest solution would be to choose a single public order for all conditions along the course. A refinement would be to choose different public orders for different conditions. There might be an order for moving over flat terrain, another for moving up hills, and a third for moving down hills. Another refinement would be to develop procedures for rotating cyclists from more tiring positions to less tiring positions as they become tired. Over time, the team would refine their ability to maintain orders and to shift between these orders. An accomplished team taking this approach would resemble an expert military drill team.

“A team taking a biological approach would invent ever better rules for overcoming constraints through their experiences and the experiences of others. For example, team members would develop rules for drafting behind one another. An accomplished team taking this approach would resemble a school of fish or a flock of birds.

“A team taking a public approach would distinguish between the tactical end of cycling well based on what they currently know and the strategic end of deciding well. In addressing the tactical problem, the team would choose to make the best use of current resources in addressing the problem of cycling well. In addressing the strategic problem, the team would seek ever better means of replacing non-knowledge resources useful in

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

deciding well with knowledge resources useful in deciding well. Hence, it would consider technological as well as organizational changes. One such change would be the combination of regenerative braking and boosting motors. This combination would allow cyclists to store otherwise wasted energy from cycling downhill to use when cycling uphill. Another such change would be a networked steering control system similar to experimental automated highway control systems that allow cars to travel bumper-to-bumper at high speeds. Such a system would execute tactical moves much more quickly and precisely than people can execute them. The combination of regenerative braking, boosting motors, and automated steering would quickly lead to the development of a means of transferring power from one bicycle to another. This change would eliminate the need to rotate team members from tiring positions to less tiring positions. It would also allow the team to reduce wind resistance by putting cyclists who ride taller than others near the center of the pack. In the long run, an accomplished team taking this approach would resemble a liquid that undergoes phase changes as it becomes ever more fluid.

“Liquids that undergo phase changes as they become ever more fluid lie outside of our everyday experience. A dramatic example of such a liquid is that of the isotope of helium that has two neutrons and two electrons (^4He). ^4He atoms are bosons (objects that have integer spin). Unlike fermions (objects that have non-integer spin), more than one boson can occupy the same quantum state. Statistically, this is unlikely to happen unless bosons enter their ground state (lowest energy state). As we remove more energy from these bosons, more of them enter their ground state. At just below 2.2 degrees Kelvin and one atmosphere of pressure, a large enough percentage of them enter their ground state for ^4He liquid to change from being only slightly more fluid than classical physics predicts (Helium I) to being much more fluid than classical physics predicts (Helium II). In short, it changes from being a fluid to a superfluid.

“Superfluid ^4He atoms interact with each other too much for all of them to enter their ground state. However, other types of bosons do not have this problem. For example, at roughly 170 billionths of a degree above absolute zero, the bosonic form of rubidium enters a state of matter in which all atoms are in their ground state. In this state, which physicists call a Bose Einstein condensate, groups of these atoms act as if they were a single atom.”

were deleted.

Chapter 3, *Public Entropy*, entire section

“*Public Entropy*

One lesson that we can learn from contemplating how liquids become superfluid is the usefulness of the concept of entropy. Entropy is a measure of the amount of disorder in an object. We may use this concept to think about useful resources in decision processes. In this context, entropy is a measure of the amount of *non-knowledge* wealth that it is theoretically possible to remove from a decision process without lowering the quality of the process. We may call this measure *public entropy*.⁶”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“*Zero public entropy* is the transcendental end of the process of lowering public entropy.⁷ From the view of modern economics, it is the dynamic alternative to Pareto optimality.⁸ From the view of a person behind the veil of complete ignorance, it is **what makes the ideal process of deciding well ideal.**”

“We can use the concept of zero public entropy to help us find problems to solve. As we saw in the EOQ example, the concepts we use to frame our problems tend to blind us to finding better problems to solve. **In the cycling example above, our concept of ‘cycling race’ tends to blind us to ways of replacing knowledge wealth for non-knowledge wealth. These include regenerative braking, boosting motors, and automated steering. A strategy based on lowering public entropy would reveal this problem.**”

“A more subtle blinder is the false belief that we can separate one decision process from all others. For a team of cyclists to take a truly public approach to overcoming constraints, its solution to cycling well must be part of the solution to deciding well. Hence, being part of the team must be something that every team member needs to pursue Wisdom. In general, lowering public entropy reveals not only problems with solutions that fall within the bounds of chosen problems, but also those that surpass **these bounds.** We may call the former *normal problems* and the latter *revolutionary problems.*”

“⁶ From the view of modern science, ‘entropy’ has several meanings. In physics, it is a measure of disorder; in thermodynamics, it is a measure of inefficiency; and in information theory, it is a measure of unpredictability. From the boundlessly pragmatic view of this work, ‘entropy’ means waste in solving the problem that contains all other problems. Physical entropy is the negation of physical order useful in solving this problem; thermodynamic entropy is the negation of thermodynamic efficiency in solving this problem; and informational entropy is the negation of informational efficiency in solving this problem.”

“⁷ Removing non-knowledge wealth from the process of deciding well without lowering the quality of deciding well induces the creation of knowledge of how to decide well using fewer non-knowledge resources. For more on the process of inducing the creation of knowledge useful in deciding well, see the Appendix.”

“⁸ Pareto optimality is the state of the world in which it is impossible to make any person better off without making at least one other person worse off.”

was changed to:

“**Public Entropy**

Modern scientists use the term ‘entropy’ to describe measures of inefficiency (in heat engines), disorder (in physical systems), and uncertainty (in information processing). We may also use it to describe waste in deciding well. In this context, entropy is a measure of the amount of *non-knowledge* wealth that it is theoretically possible to remove from a decision process without degrading the process. We may call this

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

measure *public entropy* and the transcendental end of lowering this measure *zero public entropy*. From the view of modern economics, **zero public entropy** is the dynamic **analogue of and** alternative to Pareto optimality.⁶ From the view of a person behind the veil of complete ignorance, it is **all people deciding perfectly**.

“At zero public entropy, all people decide perfectly. There are a nearly infinite number of ways for people to decide foolishly, but only one way for people to decide perfectly. Individual people tend to become more predictable the better they decide. Further, they tend to work together more coherently the better they decide. Consider how a squad of raw recruits would act if forced by circumstances into combat against a superior force. We cannot predict exactly how these people will act, but we can predict that they will not act as a unit, as a single entity. Now consider how a squad of seasoned special forces soldiers would act under the same circumstances. To prevail over a superior force, they need to act unpredictably. Although we cannot predict exactly how these people will act, we can predict that they will act as if they were a single entity.⁷

“We can use the concept of public entropy to help us find problems to solve. As we saw in the EOQ example, the concepts that we use to frame our problems tend to blind us to finding better problems to solve in pursuing timeless ends. **We can overcome this blindness by removing ever more non-knowledge resources. As we do so, we learn to replace ever more non-knowledge resources with knowledge resources.**⁸ Most of the problems we discover by removing non-knowledge resources from a decision process have solutions that fall within the bounds of our chosen problem, some have solutions that surpass the bounds of our chosen problem. We may call the former *normal problems* and the latter *revolutionary problems*.”

“⁶ Pareto optimality is the state of the world in which it is impossible to make any person better off without making at least one other person worse off.”

“⁷ Modern economists such as Paul Samuelson were right to look to thermodynamics for models of how large groups of people will act, but were wrong to look to classical thermodynamics. To explain what happens in economies, which includes what happens as we learn to live ever more wisely, we need to explain based not on what happens at the margins, but rather on what happens as we create knowledge, which calls for us to consider what happens in the infinitely long run. Studying what happens to people in the infinitely long run is the equivalent of studying what happens in physics at near absolute zero temperature. A group of people working together perfectly is the public analogue of a *Bose-Einstein condensate*. As we learn to decide ever more wisely, we learn to work together ever more wisely. The process of learning to work together ever more wisely is not continuous. A bit more knowledge may have no effect or a very large effect. Imagine a battalion of raw recruits. Now imagine that we begin to replace raw recruits with seasoned special forces one person at a time. Each replacement may have no effect, some effect, or a large effect on the ability of soldiers in the battalion to act as a unit. Physical analogues of large effects include transitions to superconductivity and superfluidity.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“⁸ For more about the process of inducing the creation of knowledge useful in deciding well, see the Appendix.”

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, first paragraph

“Another lesson that we can learn from contemplating how liquids become superfluid is the usefulness of studying extreme cases. By thinking about what happens as we approach absolute zero, we may refine our beliefs about how quantum mechanics relates to pursuing Wisdom.”

was merged into the second paragraph and changed to:

“We may also use the concept of public entropy to relate quantum mechanics to pursuing Wisdom.”

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, last paragraph, end

Added the sentences:

“In this class, we relate the strange behaviors of objects on the quantum-level not simply to everything else we believe we know about physics, but rather everything we believe we know about the world. As we shall see in the next chapter, this rings true with Einstein’s call for physicists to think critically about not only physics, but also everyday thinking.”

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, first paragraph, third sentence

“One member of this new class is a model in which we assume that there are no constraints on gathering and using information. Information flows as freely as it does in the modern economic model of perfect competition. The major difference is that this information includes information not only about how best to satisfy our wants, but also about how best to satisfy our needs. In this ideal model, people decide perfectly with respect to all currently available knowledge. In doing so, all people act as if they were a single decider facing a single problem, which is the problem that contains all other problems. We may think of this model as a single decision-tree¹⁰ in which events are either under the control of people pursuing Wisdom or not under the control of people pursuing Wisdom.¹¹”

“¹⁰ We may model deciding well as a tree consisting of decision events and uncertain events. Decision events are events that change the course of events that the decider controls. Uncertain events are events that change the course of events that the decider does not control.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹¹ Implicit in this decision-oriented model of the world is belief that free will exists. We currently have no empirical way of disproving that free will either exists or does not exist. From the multiplex view, we ought to choose the research program that seeks to disprove the beautiful choice, which is that free will exists. This program calls for us to act as if free will exists.”

were changed to:

“We can imagine an ideal decision-oriented model in which information flows as freely as it does in the modern economic model of perfect competition. In this ideal model, people decide perfectly with respect to all currently available knowledge. In doing so, they act as if they were a single decider facing a single problem, which is the problem that contains all other problems. We may think of this model as a single decision-tree.¹⁰”

“¹⁰ Decision tree models consist of decision events, events that change the course of events that the decider controls, and uncertain events, events that change the course of events that the decider does not control. Here, we are the decider. Implicit in this model is the belief that we ought to act as if free will exists. This belief rests on the belief that we ought to test all of our beliefs. If we choose to believe that free will exists, we ought to seek to disprove that free will exists, which calls for us to act as if free will exists. On the other hand, if we choose to believe that free will does not exist, we ought to seek to disprove that free will does not exist, which calls for us to act as if free will does not exist. Arguably, the former is the more beautiful problem to solve.”

Chapter 4, Refining Everyday Thinking, first paragraph, footnote, first two sentences

“This is compatible with the instrumental interpretation of Milton Friedman’s definition of positive economic science as “a body of tentatively accepted generalizations about economic phenomena that can be used to predict the consequences of changes in circumstances (Friedman, Milton, “The Methodology of Positive Economics,” *Essays in Positive Economics*, Chicago: University of Chicago Press, 1953, p. 39)”. However, communication across frames is only partial.”

were changed to:

“Milton Friedman defined positive economic science as “a body of tentatively accepted generalizations about economic phenomena that can be used to predict the consequences of changes in circumstances (Friedman, Milton, “The Methodology of Positive Economics,” *Essays in Positive Economics*, Chicago: University of Chicago Press, 1953, p. 39)”. Communication across frames is only partial.”

Chapter 4, A Crude Look at the Whole, first paragraph

Changed “However, deciding” to “Deciding” in the seventh sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, Useful Reminders, first paragraph

“We pursue the Truth by pursuing Wisdom. Pursuing Wisdom calls for us to judge not only footholds and handholds but also paths leading to Wisdom, hence to all of the boundless factors of pursuing Wisdom.”

was changed to:

“Pursuing the Truth calls for us to pursue Wisdom, which in turn calls for us to pursue all of the boundless factors of pursuing Wisdom.”

Chapter 6, Schweitzer's Universal Spiritual Need, third paragraph

Changed “been a great hindrance to” to “greatly hindered” in last sentence.

Chapter 6, Schweitzer's Universal Spiritual Need, fourth paragraph

Changed “. However,” to “, but” in the first and second sentences.

Chapter 6, Worldly Benefits of Magical Mysticism, first paragraph

Changed “. However,” to “, but” in the first and second sentences.

Chapter 6, Experiencing the Mysterious, second paragraph

Changed “these two ends often complement each other. However, they also” to “the pursuits of these two ends both support each other and” in the last two sentences.

Chapter 6, A Common Timeless End, first paragraph

Changed “Wholeness” to “Pursuing Wholeness” and “the Good” to “pursuing the Good” in the second sentence.

Changed “The Good” to “Pursuing the Good” and “Wholeness” to “pursuing Wholeness” in the fourth sentence.

Appendix, Less is More, first paragraph

Changed “wisely (efficiently and effectively)” to “well” in the first sentence.

Changes in Version 2011.10.05

Chapter 3, Pursuing the Ring of Truth, last paragraph, end

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Added the sentence:

“Beautiful things not only please us, but also enlighten us.”

Chapter 8, Natural Reasoning, first paragraph, fourth sentence

“Only when they lack the means to cooperate well do they compete.”

was deleted.

Changes in Version 2011.10.08

Chapter 1, Useful Frames, third paragraph, footnote, first two sentences

“**Note that** what we deem to be a matter of efficiency changes with the size of the problem. **Thus**, speaking of efficiency without specifying a problem scale can cause great confusion.”

was changed to:

“**Because** what we deem to be a matter of efficiency changes with the size of the problem, speaking of efficiency without specifying a problem scale can cause great confusion.”

Chapter 1, Values, fifth paragraph

Changed “**Hence**, the Europeans” to “**T**he Europeans” in the tenth sentence.

Chapter 1, Steps for Building Multiple-Frame Models, fourth paragraph, third sentence

“**Hence**, the pursuits of Wisdom and the Truth intertwine to form a single pursuit.”

was deleted.

Chapter 1, Invariant Values, first paragraph, footnote

Changed “**Note that we**” to “**We**” in the first sentence.

Chapter 2, Production, first paragraph

Changed “**Thus**, production” to “**P**roduction” in the second and last sentences.

Chapter 3, Contemplating the Way Forward, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The recursive process for knowing transcendent objects is endless. Hence, we may reasonably call the result of a cycle its *timeless end* and the result of the process its *transcendent end*.”

was changed to:

“Because the recursive process for knowing transcendent objects is endless, we may reasonably call the result of a cycle its *timeless end* and the result of the process its *transcendent end*.”

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, first paragraph, second and third sentences

“Quantum mechanics provides us with statistical rather than exact predictions about what will happen on the microscopic level. This shortcoming is due to two strange behaviors of objects on this level.”

were changed to:

“Objects on the microscopic level of quantum mechanics do not behave like objects on the macroscopic level. Two behaviors of objects on this level are especially strange.”

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, second paragraph

Changed “somewhere” to “somewhere in the universe” in the second to last sentence.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, last paragraph

Changed “not simply to everything else we believe we know about physics, but rather” to “to” in the third sentence.

Chapter 5, *Tax Well*, first paragraph

“Taxing, like restricting speech or actions, affects how we create and use knowledge. The economic turbulence and embedded mistakes from taxing foolishly are just as real, and just as dangerous, as those from restricting speech or actions foolishly. Thus, policymakers ought to think as carefully about how they tax as they do about how they restrict speech or actions.”

was changed to:

“Tax policies affect how we create and use knowledge. The mistakes from foolish tax policies are just as real, and just as dangerous, as other foolish policies. Policymakers ought to think as long and hard about how they tax as they do about how they restrict speech or action.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 7, The Scope of Game Theory, second paragraph

Changed “Hence” to “From Hofstadter’s view” in the last sentence.

Chapter 8, Complete Reasoning, last paragraph

“Multiple-frame models of pursuing Wisdom provide us with structures for thinking about not only conflicts but also holes in our networks of beliefs. Hence, we may call them *reasonably complete*.”

was merged into the preceding paragraph and changed to:

“Because multiple-frame models of pursuing Wisdom provide us with structures for thinking about not only conflicts but also holes in our networks of beliefs, we may call them *reasonably complete*.”

Appendix, Folding in Processes, second paragraph

Changed “Thus, the” to “The” in the second sentence.

Changes in Version 2011.10.11

Entire work

Checked all referenced external links and updated time references to these links.

Chapter 1, *The EOQ/RTS Example*, last paragraph, footnote

Changed “For more on” to “For more about” in the last sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, first paragraph, footnote

Changed “For more on” to “For more about” in the last sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph, footnote

Changed “on logical completeness, see the last two chapters” to “about logical completeness, see the third, seventh, and eighth chapters” in the first sentence.

Chapter 3, *Contemplating the Way Forward*, first paragraph

“Pursuing Wisdom calls for us to think deeply about how we decide well. We can use the concept of *transcendental recursive objects* to help us organize our thoughts.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“Pursuing Wisdom calls for us to think **beautifully** about how we decide well. We can use the concept of *transcendental recursive objects* to help us **think beautifully about thinking beautifully.**”

Chapter 3, *Three Approaches to Policy*, entire section

“*Three Approaches to Policy*”

From the view of mathematics, π is *computable*, which is to say that we can program an abstract computing machine that does nothing more than follow programmed rules to compute π . In contrast, from the view **of the multiple-frame approach to pursuing Wisdom**, π is **not** computable. The claim that π is computable arises from reducing the actual problem of computing π to an abstract problem of computing π that ignores constraints. **The following thought experiment explains how three distinct approaches to overcoming constraints give rise to three distinct approaches to policy.**

“Imagine giving the greatest minds of 1776 the task of computing the value of π to a trillion (10^{12}) decimal places.³ Most of these people would likely provide what they believed to be the best means of computing π . Because this approach relies on currently existing means of overcoming constraints, we may call this *the temporal approach to overcoming constraints*. **From this view, we ought to promote solutions that use existing tools. We may call this the *engineering approach to policy*. People who take this approach put their faith in the wisdom of current experts.**⁴

“Now imagine giving the greatest minds of today the task of computing π to a googol (10^{100}) decimal places. **Some** of these people would likely **provide what they believe to be the best means of computing π** . **Others would likely** say that people seeking to live well will invent ever better means of computing and that we cannot imagine what better means they will invent. Because this approach relies on the timeless process of living well, we may call this *the timeless approach to overcoming constraints*. **From this view, we ought to promote the timeless end of living well and leave the problem of overcoming constraints to people to work out among themselves. We may call this the *biological approach to policy*.**⁵ **People who take this approach put their faith in the wisdom of current concepts, customs, case law, and common sense.**

“From the multiplex view, there is a third approach to overcoming constraints. **People taking this approach would say that** the best means of computing π to a googol decimal places is to pursue Wisdom. We may call this *the invariant approach to overcoming constraints*. From this view, we ought to promote deciding well using the multiple-frame approach to pursuing Wisdom and leave the problem of overcoming constraints to people to work out among themselves. **We may call this the *public approach to policy*. People who take this approach put their faith in the pursuit of wisdom that transcends current knowledge.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

³ In December 20002, computer scientists Kanada, Ushio, and Kuroda computed pi to over 1.24 trillion decimal places. See the Wolfram MathWorld entry on π digits, <<http://mathworld.wolfram.com/PiDigits.html>> (31 March 2011).”

⁴ In his book, *A Conflict of Visions: Ideological Origins of Political Struggles* (New York: William Morrow, 1987), Thomas Sowell distinguishes between what he calls unconstrained and constrained visions. From an unconstrained view, **the problems we face are relatively simple relative to our ability to solve them. The problems we face are obvious. All we need to do to solve our problems is to put the right people in charge.** This is consistent with **an engineering approach to policy.** From a constrained view, **the problems we face are complex relative to our ability to solve them. The process of finding problems to solve is not trivial.** Further, the people best able to find problems and solve **are often** the people closest to them. This is inconsistent with **an engineering approach to policy.**”

⁵ **Note the modern link between the timeless approach to overcoming constraints and the biological approach to policy. Implicit in this relation is the belief that the natural timeless end is the timeless end of living well.** From the multiplex view, the natural timeless end is the timeless end of deciding well, which all living beings naturally pursue, some much more successfully than others. **Purveyors of modern thought** have replaced ancient stories of pursuing the timeless end of deciding well (e.g., following the *Tao* or *Logos*) with the modern story of survival of the fittest. **They have replaced the holistic idea of competing well in order to cooperate well with the reductionist idea of cooperating well in order to compete well. For more on this,** see the last two chapters.”

was changed to:

“Overcoming Constraints in Pursuing Wisdom

The process of computing the value of π as mathematicians define this process differs from the process of pursuing Wisdom in a profound way. The process of refining the process of computing the value of π is not part of the process of computing the value of π . In contrast, the process refining the process of pursuing Wisdom is part of the process of pursuing Wisdom.³ Nevertheless, we can draw some conclusions about overcoming constraints in pursuing Wisdom from the much simpler case of overcoming constraints in computing the value of π .

“From the view of mathematics, π is *computable*, which is to say that we can program an abstract computing machine that does nothing more than follow programmed rules to compute π . In contrast, from the **multiplex** view, π is **computable in theory, but not computable in practice.** **In theory,** the claim that π is computable arises from reducing the actual problem of computing π to an abstract problem of computing π that ignores constraints. **In practice, we need to consider constraints on computing π . Ignoring these constraints tends to blind us to the practical problems involved in choosing the best means of computing π .**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Imagine giving the greatest minds of 1776 the task of computing the value of π to a trillion (10^{12}) decimal places.⁴ Most of these people would likely provide what they believed to be the best means of computing π . Because this approach relies on currently existing means of overcoming constraints, we may call this *the temporal approach to overcoming constraints*.⁵

“Now imagine giving the greatest minds of today the task of computing π to a googol (10^{100}) decimal places. **Most** of these people would likely say that people seeking to live well will invent ever better means of computing and that we cannot imagine what better means they will invent. Because this approach relies on the timeless process of living well, we may call this *the timeless approach to overcoming constraints*.

“From the multiplex view, there is a third approach to overcoming constraints. **Because people who pursue Wisdom invent ever better means of calculating well more readily than people who do not pursue Wisdom**, the best means of computing π to a googol decimal places is to pursue Wisdom. We may call this *the invariant approach to overcoming constraints*.

“**Three Approaches to Policy**

Each of these approaches to overcoming constraints gives rise to a distinct approach to policy. From view of the temporal approach to overcoming constraints, we ought to promote solutions that use existing tools. We may call this the *engineering approach to policy*. People who take this approach put their faith in the wisdom of current experts.

“From the view of the timeless approach to overcoming constraints, we ought to promote the timeless end of living well and leave the problem of overcoming constraints to people to work out among themselves. We may call this the *biological approach to policy*. People who take this approach put their faith in the wisdom of current concepts, customs, case law, and common sense.

“From the view of the invariant approach to overcoming constraints, we ought to promote deciding well using the multiple-frame approach to pursuing Wisdom and leave the problem of overcoming constraints to people to work out among themselves. We may call this the *public approach to policy*. People who take this approach put their faith in the public pursuit of wisdom that transcends current knowledge.⁶”

“³ We may call a process of reasoning that contains a complete means of refining itself *reasonably complete*. So conceived, the reason of pursuing Wisdom is reasonably complete.”

“⁴ In December 20002, computer scientists Kanada, Ushio, and Kuroda computed pi to over 1.24 trillion decimal places. See the Wolfram MathWorld entry on π digits, <<http://mathworld.wolfram.com/PiDigits.html>> (11 October 2011).”

“⁵ In his book, *A Conflict of Visions: Ideological Origins of Political Struggles* (New York: William Morrow, 1987), Thomas Sowell distinguishes between what he calls

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

unconstrained and constrained visions. From an unconstrained view, **finding the best problems to solve tends to be trivial. Hence, deciding well is largely a matter of giving the people who are willing to address the problem the power to address it.** This is consistent with **the temporal approach to overcoming constraints.** From a constrained view, **finding the best problem to solve tends to be difficult.** Further, the people best able to find problems and solve problems tend to be the people closest to them. This is not consistent with **the temporal approach to overcoming constraints.”**

“⁶ From the multiplex view, the **natural** timeless end is the timeless end of deciding well, which all living beings naturally pursue, some much more successfully than others. **Modern thinkers** have replaced ancient stories of pursuing the timeless end of deciding well, e.g., following the *Tao* or *Logos*, with the modern story of survival of the fittest. **In doing so**, they have replaced the holistic idea of competing well in order to cooperate well with the reductionist idea of cooperating well in order to compete well. For more **about natural reasoning**, see the last two chapters.”

Chapter 3, *Public Entropy*, first paragraph

Changed “**From the view of modern economics, zero**” to “**Zero**” in the fourth sentence.

Chapter 3, *Public Entropy*, second paragraph

Changed “**We** cannot predict exactly how these people will act, **but** we” to “**Although we** cannot predict exactly how these people will act, **we**” in the fourth sentence.

Changed “**prevail over**” to “**defeat**” in the seventh sentence.

Changed “as **if they were** a single entity” to “as **a unit, as** a single entity” in the last sentence.

Chapter 3, *Public Entropy*, last paragraph, last two sentences

“Most of the problems we discover by removing non-knowledge resources from a decision process have solutions that fall within the bounds of the timeless problem we believe we are addressing, **but some have solutions that fall outside the bounds of the problem we believe we are addressing.** We may call **the former** *normal problems* and **the latter** *revolutionary problems.*”

were changed to:

“Most of the problems we discover by removing non-knowledge resources from a decision process have solutions that fall within the bounds of the timeless problem we believe we are addressing. We may call **these** *normal problems*. **Some have solutions that fall outside the bounds of the problem we believe we are addressing.** We may call **these** *revolutionary problems*. **As we shall see, the most common revolutionary problem of modern times is the problem of reason.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, first paragraph, footnote

Changed “**Arguably, the**” to “**The**” in the last sentence.

Chapter 5, *Promote Pursuing Wisdom, not Temporal Order*, first paragraph, footnote

Changed “**solve**” to “**address**” in the last sentence.

Chapter 6, *The Farther Reaches of our Nature*, second paragraph

Changed “**proposition**” to “**claim**” in all (4 occurrences).

Chapter 7, *Boyd's Grand Strategy*, last paragraph, footnote

Changed “For more **on**” to “For more **about**” in the last sentence.

Chapter 8, *Complete Reasoning*, last paragraph

“**Because multiple-frame models of pursuing Wisdom provide us with structures for thinking about not only conflicts but also holes in our networks of beliefs, we may call them *reasonably complete*.**”

was returned to a separate paragraph and changed to:

“**We may call a process of reasoning that contains a complete means of refining itself *reasonably complete*. So conceived, the reason of pursuing Wisdom is reasonably complete. It helps us think about not only conflicts but also holes in our networks of beliefs.**”

Changes in Version 2011.10.12

Chapter 1, *Choosing Frames Well*, second paragraph

Changed “**clarity of mind**” to “**knowledge resources**” in the fourth sentence.

Chapter 8, *Useful Reasoning*, last paragraph

Changed “**Thus**” to “**Therefore**” in the third sentence.

Chapter 8, *Complete Reasoning*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Because multiple-frame models of pursuing Wisdom provide us with structures for thinking about not only conflicts but also holes in our networks of beliefs, we may call them *reasonably complete*.”

was changed back to a separate paragraph and changed to:

“We may call a process of reasoning that contains a complete means of refining itself *reasonably complete*. So conceived, the reason of pursuing Wisdom is reasonably complete. It helps us think about not only conflicts but also holes in our networks of beliefs.”

Changes in Version 2011.10.15

Entire work

Checked all referenced external links and updated time references to these links (14 October 2011).

Preface, last paragraph, third and fourth sentences

“Those trained to classify reason will find it especially challenging. They have more to unlearn.”

were deleted.

Chapter 1, *Ever More Complete Multiple-Frame Models*, first paragraph, footnote

“¹³ The pursuit of living well concerns our internal (teleonomic) programming. Given the critical importance of our need for spiritual wholeness and the difficulty of testing our beliefs about this need, we ought to consider this need separately. Among other things, this will allow us to reconcile materialist and dualist means of satisfying this need.”

was deleted.

Chapter 1, *Ever More Complete Multiple-Frame Models*, fifth paragraph

“Consider how we can use this rule for living and working together well to help us choose the best frame for judging how well we govern ourselves. From within each frame we consider, the frame we are in looks to be the best frame. We find ourselves in a mental hall of mirrors from which analytical techniques cannot help us escape. Twentieth-century philosopher John Rawls provides us with a technique that can help us reason our way out of this quandary. He asks us to imagine what we should choose if we were ignorant of the circumstances of our birth.¹⁴ For this imagined original position of ignorance to produce a *completely just* end, we must consider what end we should want

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

people to pursue if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of that species we will be and into what era we will be born. From behind this veil of complete ignorance, we should want all people to pursue the timeless end of revering life well, which we may call *Wholeness*.”

“¹⁴ Rawls, John, *A Theory of Justice* (Cambridge, MA: The Belknap Press of Harvard University, 1971), chapter III.”

was deleted.

Chapter 1, *Invariant Values*, first paragraph, last two sentences

“To choose other than these invariant values is to choose to aim at something less than Wisdom. To choose other than these values is to choose to decide foolishly.”

was changed to:

“To choose other than these invariant values is to choose to decide foolishly.”

Chapter 2, *Pleasure and Pain*, second paragraph, footnote, last sentence

“We see this reflected in the once popular surfer concept of “total involvement” and in psychologist Mihály Csíkszentmihályi’s concept of “flow.””

was deleted.

Chapter 2, *Profit*, first paragraph

Changed “money” to “taxes” in the last sentence.

Chapter 3, *Public Entropy*, first paragraph, last sentence

“From the view of a person behind the veil of complete ignorance, it is all people deciding perfectly.”

was deleted.

Chapter 3, *Public Entropy*, last paragraph, last sentence

“As we shall see, the most common revolutionary problem of modern times is the problem of reason.”

was deleted.

Chapter 4, *Academic Fields*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “on the boundless factors” to “on **what people need, which is knowledge useful in pursuing** the boundless factors” in the fourth sentence.

Chapter 4, Refining Deciding Well, first paragraph

Changed “**logical**” to “*logical*” in the second sentence.

Chapter 4, Refining Deciding Well, second paragraph

Changed “**beautiful**” to “*beautiful*” in the first sentence.

Chapter 5, *A Sovereign Story of Pursuing Wisdom*, last paragraph, first footnote

Changed “**timeless**” to “**classical**” in the second sentence.

Chapter 5, Liberalism, second paragraph, fourth sentence

“**As the veil of complete ignorance technique reveals, social justice is not Justice.**”

was deleted.

Chapter 5, Liberalism, third paragraph

Changed “us” to “us **in pursuing happiness (the Good)**” in the last sentence.

Chapter 6, The Farther Reaches of Our Nature, fourth paragraph

Changed “**statement**” to “**claim**” in the third sentence.

Chapter 6, The Farther Reaches of Our Nature, last paragraph

Changed “**the study of**” to “**study**ing” in the second sentence.

Chapter 6, *Schweitzer’s Universal Spiritual Need*, first paragraph, second sentence

“**The satisfaction of** this need allows us to **transcend our normal consciousness and** experience awe, rapture, and bliss.”

was changed to:

“**Satisfying** this need allows us to experience awe, rapture, and bliss.”

Chapter 6, *Schweitzer’s Universal Spiritual Need*, end

Added the paragraph:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Twentieth-century philosopher John Rawls provides us with a technique that can help us refine our beliefs about revering life well. He asks us to imagine what we should choose if we were ignorant of the circumstances of our birth.⁷ For this imagined original position of ignorance to produce a *completely just* end, we must consider what end we should want people to pursue if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of that species we will be and into what era we will be born. From behind this veil of complete ignorance, we should want all people to pursue the timeless end of revering life well, which we may call *Wholeness*. From behind this veil, *zero public entropy* is all people deciding perfectly.”

“Rawls, John, *A Theory of Justice* (Cambridge, MA: The Belknap Press of Harvard University, 1971), chapter III.”

Chapter 6, *Worldly Benefits of Detachment*, last paragraph

Changed “classic” to “mythic” in the second sentence.

Chapter 7, *Temporal OODA Loop Analysis*, last paragraph, beginning

Added the sentence:

“Boyd first used his OODA loop model to address a temporal problem.”

Chapter 7, *Timeless OODA Loop Analysis*, last paragraph, first sentence

“Boyd also used his OODA loop model to address problems in which learning was important.”

was changed to:

“Boyd next used his OODA loop model to address timeless problems.”

Chapter 8, *Complete Reasoning*, last paragraph

Changed “the reason of pursuing Wisdom” to “the reason of deciding well using the multiple-frame approach to pursuing Wisdom” in the second sentence.

Changed “networks of beliefs” to “belief systems” in the last sentence.

Changes in Version 2011.10.18

Chapter 6, *Schweitzer’s Universal Spiritual Need*, last paragraph

Deleted “, which we may call *Wholeness*” from the fourth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 6, Worldly Benefits of Detachment, third paragraph, first sentence

“Further, denying the world and life as we currently know it can change our belief systems for the better.”

was changed to:

“Detaching ourselves from the world and life can also change our belief systems for the better.”

Chapter 6, A Common Timeless End, first paragraph

Inserted the following paragraph and sentence at the beginning of the paragraph:

“Defining the process of living well and the timeless end of living well creates ambiguity in the frame for pursuing the Good. We may refine our beliefs about pursuing the Good by creating a frame for satisfying our need for mystical oneness. We do this by defining the process of satisfying our need for mystical oneness and the timeless end of this process in terms of one another. Adding this frame allows us to think more clearly about the relation between pursuing the Good and pursuing Wisdom.

“We may call the timeless end of satisfying our need for mystical oneness *Wholeness*.”

Italicized the last sentence:

“*Pursuing Wisdom makes it ever less likely that we will need to make this choice.*”

Changes in Version 2011.10.20

Acknowledgments, last paragraph

Changed “had been” to “was” in the first sentence.

Chapter 1, Choosing Frames Well, last paragraph, end

Added the footnote:

“⁵ From the boundlessly pragmatic view put forth in this work, this simple prescription lies at the heart of reason. At issue is the usefulness of a form of reason based not only on logic, but also on beauty within the context of pursuing the timeless end of deciding well. Consider Georg Cantor’s continuum hypothesis. Using his theory of sets, Cantor discovered that some infinities were larger than others. For example, the number of members of the set of real numbers is larger than that of integers. Cantor went on to hypothesize that there were no levels of infinity between those of integers and real

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

numbers. Cantor drove himself insane trying to decide whether this hypothesis was true or false. Later, Kurt Gödel drove himself insane trying to decide whether it was true, false, or undecidable. From the view of this work, a more basic question than either of these is whether the approach to mathematics in which this hypothesis is true is more useful than the approach in which this hypothesis is false in pursuing the timeless end of deciding well. An even more basic question is whether either approach has a place in pursuing the timeless end of deciding well.”

Changes in Version 2011.10.22

Preface, tenth paragraph

Changed “**Revering Life**” to “**Linking**” in the first sentence.

Chapter 1, *Invariant Values*, first paragraph

Changed “The **boundless** factors **of deciding well**” to “**These** factors” in the third sentence.

Changed “**invariant** values” to “values” in the fourth sentence.

Chapter 1, *Invariant Values*, first paragraph

Changed “The **boundless** factors **of deciding well**” to “**These** factors” in the third sentence.

Chapter 2, *A Strategy for Learning Well*, first paragraph

Changed “using” back to “**deciding well** using” in the last sentence.

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, third paragraph

Changed “a trillion (10^{12})” to “ 10^{12} (a trillion)” in the first sentence.

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, fourth paragraph

Changed “a googol (10^{100})” to “ 10^{24} (a trillion squared)” in the first sentence.

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, last paragraph

Changed “a googol” to “ 10^{24} ” in the second sentence.

Chapter 4, *A Crude Look at the Whole*, first paragraph, last footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed ““**roughness**” of economic flows **relative to the speed of progress**” to “**viscosity** of economic flows” in second sentence.

Chapter 6, title

Changed “**Revering Life** Well” to “**Linking** Well.”

Chapter 6, The Farther Reaches of Our Nature, last paragraph

Changed “**rightly**” back to “**wisely**” in the last sentence.

Chapter 6, *Schweitzer’s Universal Spiritual Need*, last paragraph

Removed italics from “**zero public entropy**” in the last sentence.

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote

Changed “sophistry” to “modern **sophistry**” in the last sentence.

Changes in Version 2011.10.25

Chapter 1, Choosing Frames Well, last paragraph, footnote

Changed “**decide**” to “**prove**” in the seventh and eighth sentences (2 occurrences).

Chapter 1, Choosing Frames Well, last paragraph, footnote, last two sentences

“From the view of this work, **a more basic question than either of these is** whether the approach to mathematics in which **this hypothesis is true is more useful than the approach in which this hypothesis is false in pursuing the timeless end of deciding well.** **An even more basic question is whether either approach** has a place in pursuing the timeless end of deciding well.”

were changed to:

“From the view of this work, **the relevant questions are (1)** whether the approach to mathematics in which **the continuum hypothesis is true** has a place in pursuing the timeless end of deciding well **and (2) whether the approach to mathematics in which the continuum hypothesis is false** has a place in pursuing this timeless end.”

Chapter 6, A Common Timeless End, last paragraph, end

Added the paragraph:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the modern view, the belief that pursuing Wholeness is subordinate to pursuing the Good conflicts with the belief that pursuing the Good is subordinate to pursuing Wholeness. From the multiplex view, the reason these two beliefs conflict is that we do not know which is the better belief. There is a hole in our belief systems that acting calls for us to fill with faith. We best settle such conflicts by competing to see which belief best helps us pursue Wisdom.”

Changes in Version 2011.10.29

Preface, fifth paragraph

Changed “**have tried to** provide” to “provide” in the first sentence.

Chapter 3, *Public Order*, last paragraph, footnote

“⁶ From the multiplex view, the natural timeless end is the timeless end of deciding well, which all living beings naturally pursue, some much more successfully than others. Modern thinkers have replaced ancient stories of pursuing the timeless end of deciding well, e.g., following the *Tao* or *Logos*, with the modern story of survival of the fittest. In doing so, they have replaced the holistic idea of competing well in order to cooperate well with the reductionist idea of cooperating well in order to compete well. For more about natural reasoning, see the last two chapters.”

was deleted.

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, first paragraph, footnote, last sentence

“In taking this approach to pursuing Wisdom, we may hope to see as deeply as Georg Cantor, Ludwig Boltzmann, Kurt Gödel, and Alan Turing without suffering their fates. For more on these four men, their works, and their fates, see David Malone’s documentary film, *Dangerous Knowledge* <<http://www.youtube.com/watch?v=x0hALyh40xg>> (14 October 2011).”

was deleted.

Chapter 3, *The Elephant in the Room*, second and third paragraphs

“The essential **biological** explanation of this coincidence is simple and straightforward. We evolved to have a religious need to become a part of something infinitely greater than ourselves. **Seeking to satisfy this need is useful in securing the best chances of survival for our offspring and ourselves.** We **seek to** satisfy this need by deciding well. We collectively refine our means of deciding well by deciding well over time. **Deciding well and our understanding of deciding well co-evolve.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The essential **theological** explanation of this coincidence is as simple and straightforward. The Creator created what we call the laws of nature. These include the need for life to **survive and thrive**. Life flourishes by deciding well. As people, we collectively refine our means of deciding well by deciding well over time. **Deciding well and our understanding of deciding well co-evolve.**”

were changed to:

“The essential **atheistic** explanation of this coincidence is simple and straightforward. We evolved to have a religious need to become a part of something infinitely greater than ourselves. We satisfy this need by deciding well. We collectively refine our means of deciding well by deciding well over time. **Deciding well using the multiple-frame approach to pursuing Wisdom is a strategy for learning to know everything about the world.**

“The essential **theistic** explanation of this coincidence is as simple and straightforward. The Creator created what we call the laws of nature. These **laws** include the need for life to **flourish**. Life flourishes by deciding well. As people, we collectively refine our means of deciding well by deciding well over time. **Deciding well using the multiple-frame approach to pursuing Wisdom is a strategy for learning to know everything about the world, a research program for understanding the Creator’s thoughts in creating the world.**”

Chapter 3, The Elephant in the Room, last paragraph

Changed “explanations **of this coincidence**” to “explanations” in the first sentence.

Chapter 6, A Common Timeless End, last paragraph, last two sentences

“**There is a hole in our belief systems that acting calls for us to fill with faith.** We best settle such conflicts by **competing to see which belief best helps us pursue Wisdom.**”

were changed to:

“We best settle **this** conflict by **having these beliefs** compete in the marketplace of **beliefs for helping us pursue Wisdom.**”

Changes in Version 2011.10.31

Chapter 1, *Invariant Values*, first paragraph

“An obvious benefit of this multiple-frame approach to deciding well is that it allows us to use more of what we currently know about the world than any single-frame approach does. A less obvious benefit is that it extends the invariance of pursuing the timeless end

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

of living well to pursuing all boundless factors of deciding well. **These factors are the values we need best to solve the problem that contains all other problems.**¹⁵ To choose other than these values is to choose to decide foolishly.”

was changed to:

“An obvious benefit of this multiple-frame approach to deciding well is that it allows us to use more of what we currently know about the world than any single-frame approach does.¹⁵ A less obvious benefit is that it extends the invariance of pursuing the timeless end of living well to pursuing all boundless factors of deciding well. To choose other than these **invariant** values is to choose to decide foolishly.”

Chapter 2, *Pleasure and Pain*, last paragraph, last two sentences

“These tendencies create vicious circles of deprivation and deciding poorly. **Together these circles form what we know as** the cycle of poverty.”

were changed to:

“These tendencies create vicious circles of deprivation and deciding poorly, **which we commonly call** the cycle of poverty.”

Chapter 2, *Tools for Pursuing Wisdom*, second paragraph, fifth and sixth sentences

“In contrast, Aristotle **asks us to look for moral virtue in others.** He believed that moral virtue is the habit of wanting the right things, which we develop by acting as if we want the right things.”

were changed to:

“In contrast, Aristotle believed that moral virtue is the habit of wanting the right things, which we develop by acting as if we want the right things. **We discover these habits by observing successful people.**”

Chapter 3, *Public Entropy*, last paragraph, last three sentences

“**Most of the problems we discover by removing non-knowledge resources from a decision process have solutions that fall within the bounds of our chosen problem. We may call these *normal problems*. Some have solutions that fall outside the bounds of the problem we believe we are addressing. We may call these *revolutionary problems*.**”

were deleted.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, first paragraph

Changed “**may**” to “**can**” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, second paragraph

Changed “the *Copenhagen class*” to “**either** the *Copenhagen class* **or the *shut-up-and-calculate class***” in the fourth sentence.

Chapter 5, *Liberalism*, third paragraph

Changed “classical” to “**“classical”**” in the fourth sentence.

Deleted the last sentence:

“In the long run, nothing is more useful to us in pursuing happiness (the Good) than people who pursue Wisdom.”

Chapter 6, *A Common Timeless End*, last paragraph

Changed “marketplace of **beliefs**” to “marketplace of **ideas**” in the last sentence.

Chapter 8, *Complete Reason*, first paragraph

Combined the two sentences in the Carl Sagan quote with an “**and**” conjunction.

Changes in Version 2011.11.05

Preface, sixth paragraph

Changed “virtuous circle” back to “virtuous circle **of the division of labor and the expansion of market size**” in the last sentence.

Preface, sixth paragraph

Changed “**efficiency on all levels in all frames**” to “**removing ever more waste from the process**” in the second sentence.

Changed “tool” to “**beautiful** tool” and “**beautiful,**” to “” in the last sentence.

Chapter 1, *Choosing Frames Well*, last paragraph, footnote

Changed “larger” to “**“larger”**” in the third and fourth sentences (2 occurrences).

Changed “**number of members**” to “**infinity**” in the fourth sentence.

Removed numerals from the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *Steps for Building Multiple-Frame Models*, last paragraph, footnote, first three sentences

“The technique of reducing complex wholes to multiple frames opens more of our ability to recognize patterns to reason, thereby helping us better integrate these two abilities. According to the theory of language underlying this technique, we ought to be like pilots flying on instruments through a storm front. This “instrumental” theory of how we ought to use language contradicts the theory that we ought to use language to picture the world exactly as it is.”

were changed to:

“According to the theory of language underlying this technique, we ought to be like pilots flying on instruments through a storm front. This “instrumental” theory of how we ought to use language contradicts the theory that we ought to use language to depict the world exactly as it is.”

Chapter 3, *Pursuing the Ring of Truth*, last paragraph

Changed “Beautiful” to “Truly beautiful” in the last sentence.

Chapter 3, *Contemplating the Way Forward*, last paragraph, end

Added the footnote:

“³ From the multiplex view, our need for simple models stems from our need to pursue Wisdom efficiently, not from the presumption that the Truth is knowable, or from the related reductionist precept that simpler models tend to be true.”

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, first paragraph, footnote

“⁴ We may call a process of reasoning that contains a complete means of refining itself *reasonably complete*. So conceived, the reason of pursuing Wisdom is reasonably complete.”

was deleted.

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, last paragraph, footnote

“¹¹ We may use the multiplex approach to pursuing Wisdom to organize our beliefs about the world. When we do, we discover not only conflicts but also holes in our belief systems. Regardless of the source of alternatives for resolving these conflicts or filling these holes, we ought to judge these alternatives by how well they ring true with our current beliefs about pursuing Wisdom.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Chapter 4, *Two Types of Ignorance*, first paragraph, last sentence

“We do so by testing the models that we use to predict by how well these models help us predict and by testing the models that we use to explain causation by how well these models help us find problems to solve in pursuing Wisdom.”

was deleted.

Chapter 4, *Two Types of Ignorance*, second paragraph

“At the largest level of abstraction that we can imagine, the level of transcendent ends, there is nothing left to learn, hence no need for models that help us predict or explain on this level.”

was changed to:

“We explain causation on lower levels of abstraction. On the lowest level of abstraction there exist no lower levels from which to explain.”

Chapter 4, *Two Types of Ignorance*, last paragraph, first five sentences

“At the smallest level of abstraction that we can imagine, we cannot explain causation at a lower level. From the view of the Copenhagen class of interpretations of quantum mechanics, quantum mechanics is the lowest level of abstraction that we can imagine. Searching for models that explain causation on the level of quantum mechanics at a lower level is a waste of resources. From the view of the hidden-variables class, we can imagine levels of abstraction lower than the level of quantum mechanics. Searching for models that explain causation on the level of quantum mechanics at a lower level may not be a waste of resources.”

were changed to:

“From the view of the Copenhagen class of interpretations of quantum mechanics, quantum mechanics is the lowest level of abstraction that we can imagine. Searching for models that explain causation on the level of quantum mechanics at a lower level is a waste of resources.”

Chapter 4, *Two Types of Ignorance*, last paragraph, footnote

“^s From the multiplex view, pursuing Wisdom is a self-similar, self-referential process. Invariant science contains its own metascience.”

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *A Crude Look at the Whole*, second paragraph, first three sentences

“The **unrelenting** pressure to **replace non-knowledge resources with knowledge resources** suggests the metaphor of a near-freezing river filled with blocks of ice of various shapes and sizes, **which represent parts of our networks of knowledge-in-use. In complexity science terms, these blocks are “frozen accidents.”**”

were changed to:

“**The way we replace non-knowledge resources with knowledge resources is, in part, accidental.** The pressure to **create these “frozen accidents”** suggests the metaphor of a near-freezing river filled with blocks of ice of various shapes and sizes.”

Chapter 7, *A Revolutionary Anomaly*, last paragraph, last sentence

“**People who base their decisions on temporal values, values based** on the false belief that it is possible to separate problems from the problem that contains all other problems, act irrationally.”

was changed to:

“**Only by addressing the problem that contains all other problems can we remove the logs from our eyes. When we find problems to solve based** on the false belief that it is possible to separate **our** problems from the problem that contains all other problems, we act irrationally.”

Chapter 7, *Temporal OODA Loop Analysis*, first paragraph

Changed “**talents as a synthesizer of ideas**” to “**great ability to relate ideas**” in the last sentence.

Chapter 7, *Temporal OODA Loop Analysis*, second paragraph, footnote

“¹¹ **To address strategic problems using his inherently tactical model of deciding well, Boyd needed a timeless basis. He chose surviving and thriving on our own terms. This choice tends to blind us to seeking to cooperate well before we seek to compete well.**”

was deleted.

Chapter 7, *Timeless OODA Loop Analysis*, first paragraph

Changed “**better to survive on our own terms**” to “**to compete well**” in the last sentence.

Chapter 8, *Useful Reasoning*, first paragraph, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The multiplex reasoning of deciding well concerns efficiency functioning on all levels of all frames of deciding well.”

was changed to:

“Such is the efficiency of zero public entropy.”

Changes in Version 2011.11.11

Chapter 1, Useful Frames, second paragraph, third paragraph

“To decide well is to decide efficiently.”

was deleted.

Chapter 1, Useful Frames, third paragraph, third paragraph

“To decide well is to decide both efficiently and effectively.”

was deleted.

Chapter 1, Values, first paragraph

Changed “values that we use to choose problems to solve” to “values” in the last sentence.

Added the sentences:

“Temporal values are values we base on what we currently know. Timeless values are values we base on all that can be known.”

Chapter 1, Values, last paragraph, footnote

Changed “third, seventh, and eighth” to “last two” in the last sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, last paragraph, footnote

¹³ According to the theory of language underlying this technique, we ought to be like pilots flying on instruments through a storm front. This “instrumental” theory of how we ought to use language contradicts the theory that we ought to use language to depict the world exactly as it is. According to the most modern form of this “pictorial” theory of language, which is that Ludwig Wittgenstein’s 1921 work, *Tractatus Logico-Philosophicus*, we ought to be like painters using a *camera obscura* to record a still-life

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

scene well. For more about **the difference between the instrumental and pictorial theories of language**, see the last chapter.”

was moved to the sixth paragraph of the Values subsection and changed to:

“¹³ According to **this “instrumental” approach to language, we use language to help us choose the best path forward. We are as pilots flying on instruments through a storm. In contrast, according to the most modern form of the “pictorial” approach to language, which is that of Ludwig Wittgenstein’s *Tractatus Logico-Philosophicus*, we use language to depict the world exactly how it is. We are as painters using a *camera obscura* to record a still-life scene. For more about **these two approaches**, see the last chapter.”**

Chapter 3, *Public Entropy*, second paragraph

“**There are a nearly infinite number of ways for people to decide foolishly, but only one way for people to decide perfectly. Individual people tend to become more predictable the better they decide. Further, they tend to work together more coherently the better they decide. Consider how a squad of raw recruits would act if forced by circumstances into combat against a superior force. Although we cannot predict exactly how these people will act, we can predict that they will not act as a unit, as a single entity. Now consider how a squad of seasoned special forces soldiers would act under the same circumstances. To defeat a superior force, they need to act unpredictably. Although we cannot predict exactly how these people will act, we can predict that they will act as a unit, as a single entity.”**

“⁷ Modern economists such as Paul Samuelson were right to look to thermodynamics for models of how large groups of people will act, but were wrong to look to classical thermodynamics. To explain what happens in economies, which includes what happens as we learn to live ever more wisely, we need to explain based not on what happens at the margins, but rather on what happens as we create knowledge, which calls for us to consider what happens in the infinitely long run. Studying what happens to people in the infinitely long run is the equivalent of studying what happens in physics at near absolute zero temperature. A group of people working together perfectly is the public analogue of a Bose-Einstein condensate. As we learn to decide ever more wisely, we learn to work together ever more wisely. The process of learning to work together ever more wisely is not continuous. A bit more knowledge may have no effect or a very large effect. Imagine a battalion of raw recruits. Now imagine that we begin to replace raw recruits with seasoned special forces one person at a time. Each replacement may have no effect, some effect, or a large effect on the ability of soldiers in the battalion to act as a unit. Physical analogues of large effects include transitions to superconductivity and superfluidity.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Modern economists such as Paul Samuelson were right to look to thermodynamics for models of how large groups of people will act, but were wrong to look to classical thermodynamics. To explain what happens in economies, which includes what happens as we learn to live ever more wisely, we need to explain based not on what happens at the margins, but rather on what happens as we create knowledge, which calls for us to consider what happens in the infinitely long run. Studying what happens to people in the infinitely long run is the equivalent of studying what happens in physics at near absolute zero temperature. A group of people working together perfectly is the public analogue of a Bose-Einstein condensate.⁷ As we learn to decide ever more wisely, we learn to work together ever more wisely. The process of learning to work together ever more wisely is not continuous. A bit more knowledge may have no effect or a very large effect. Imagine a battalion of raw recruits. Now imagine that we begin to replace raw recruits with seasoned special forces one person at a time. Each replacement may have no effect, some effect, or a large effect on the ability of soldiers in the battalion to act as a unit. Physical analogues of large effects include transitions to superconductivity and superfluidity.”

“⁷ A Bose-Einstein condensate is the state of matter of a group of weakly interacting bosons (quantum-level objects with integer spin) very close to their lowest energy state. In this state, groups of bosons act as if they were a single boson.”

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, first paragraph

Changed “problem that contains all other problems” to “problem that contains all other problems **in pursuing Wisdom**” in the second sentence.

Changed “**all** of **our** beliefs” to “**the most beautiful** of **competing** beliefs” in the third sentence of the footnote.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, last paragraph

Added the footnote:

“¹⁰ This presumes that the Universe has both a beginning and an end. If not, the term “a nearly infinite number” should be “an infinite number.” Consider the simple case in which the Universe has a beginning but no end. The first time a microscopic particle transitions from acting like a wave to acting like a particle is like subtracting the set of all rational numbers with a denominator of 1 from the set of all rational numbers. The second time a microscopic particle makes this transition is like subtracting the set of all rational numbers with a denominator of 2 from the remaining set of rational numbers. The third time is like subtracting the set of all rational numbers with the denominator of 3 from the remaining set of rational. We can see from this simple model that regardless of how many transitions have occurred since the beginning of time there remain an infinite number of future possible states of the world.”

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Deleted the third sentence: “From the view of what we currently call the natural sciences, communicating at greater than light speed does not ring true with what else we currently believe we know about the natural sciences; hence investing in such a research program would likely be foolish.”

Changed “most beautiful” to “better” in the second to last sentence.

Chapter 4, Refining Everyday Thinking, third paragraph

Changed “The classic example” to “A classic example” in the sixth sentence.

Chapter 4, Refining Everyday Thinking, fifth paragraph, footnote

Changed “speeds” to “speeds relative to one another” in the last sentence.

Chapter 4, Refining Everyday Thinking, eighth paragraph

Inserted the subsection heading “*Recursivity*.”

Chapter 4, *Recursivity*, last paragraph

Changed “is an opportunity” to “provides us with opportunities” in the last sentence.

Chapter 4, *Recursivity*, last paragraph, footnote, last three sentences

“The modern scientists Kuhn studied cared about believing well per se. In contrast, the people who shifted Kuhn’s paradigm cared about believing well in order to decide well. They took a pragmatic view.”

was changed to:

“The people who shifted Kuhn’s paradigm took a pragmatic view.”

Chapter 4, *Two Types of Ignorance*, entire subsection

“*Two Types of Ignorance*”

We may think of science as the process of ridding ourselves of ever more ignorance about the world. This ignorance takes the form of uncertain predictions and incomplete explanations of causation. In pursuing the timeless end of believing well, we need to address both of these types of ignorance.

“We explain causation on lower levels of abstraction. On the lowest level of abstraction, there exist no lower levels of abstraction from which to explain.

“From the view of the Copenhagen class of interpretations of quantum mechanics, quantum mechanics is the lowest level of abstraction that we can imagine. Searching for

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

models that explain causation on the level of quantum mechanics at a lower level is a waste of resources. From the view of the decision class, we ought to search lower levels for models that explain causation on the level of quantum mechanics *wisely*. More than one explanation may fit what we can sense.⁴ We ought to choose among these the explanation that best helps us pursue Wisdom.”

was changed to:

“*Self-Similarity*

We may think of science as the process of ridding ourselves of ever more ignorance about the world. This ignorance takes the form of uncertain predictions and incomplete explanations of causation. In pursuing the timeless end of believing well, we need to address both types of ignorance.

“We explain causation on lower levels of abstraction than the level we are trying to explain. When we choose a problem to solve, we choose to accept our current explanations of causation on the level of our chosen problem and on all higher levels. In effect, we choose to ignore our ignorance of causation on the level of our chosen problem and above. We embed this ignorance into our networks of knowledge in use.

“On the lowest level of abstraction, there exist no lower levels of abstraction from which to explain. From the view of the Copenhagen class of interpretations of quantum mechanics, quantum mechanics is the lowest level of abstraction that we can imagine. Searching for models that explain causation on the level of quantum mechanics at a lower level is a waste of resources. From the view of the decision class, we ought to search lower levels for models that explain causation on the level of quantum mechanics *wisely*. More than one explanation may fit what we can sense.⁴ We ought to choose among these the explanation that best helps us pursue Wisdom.”

Chapter 4, *A Crude Look at the Whole*, first paragraph, middle footnote

Removed numbering from last sentence.

Chapter 4, *A Crude Look at the Whole*, first paragraph, last footnote

Deleted the first two sentences: “The structure and dynamics of our networks of knowledge-in-use are a great mystery. We may speculate that the viscosity of economic flows varies inversely with the quality of decision-making.”

Deleted “also” from the new first sentence.

Added the sentence: “For more on this, see the last chapter.”

Chapter 4, Useful Reminders, second paragraph

Changed “do often” to “often” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, Promote Savings for Welfare, last paragraph, first footnote

“¹⁶ From the view of modern economics, our interest in how others choose to live is external to the problem of how best to allocate scarce resources. The modern economic solution to this externality problem involves making all information about how we choose to live our lives knowable to all. Compared to the loss of all privacy, the universal welfare savings plan and highly progressive taxation solution does not look so onerous. From the multiplex view, the natural distribution of income of people deciding well is likely to follow an inverse power law. If so, policies for redistributing income will hinder pursuing Wisdom. Far better are policies for promoting the pursuit of Wisdom.”

was deleted.

Chapter 6, *Worldly Benefits of Detachment*, first paragraph

“Schweitzer recognized the worldly benefit of embracing the world and life, but he ignored the worldly benefits of denying the world and life by detaching ourselves from them.”

was appended to the second paragraph and changed to:

“Schweitzer’s modern view of mystical oneness ignores the worldly benefits of denying the world and life.”

Chapter 6, *Worldly Benefits of Detachment*, last paragraph

Changed “system of beliefs, including the concepts underlying our beliefs” to “belief systems” in the third sentence.

Changed “system of beliefs” to “beliefs” in the seventh sentence (2 occurrences).

Chapter 7, *A Revolutionary Anomaly*, last paragraph

Changed “problem that contains all problems” to “problem that contains all other problems in pursuing Wisdom” in the second sentence.

Changed “the problem that contains all other problems” to “this universal problem” in the third and last sentences (2 occurrences).

Switched the order of the last two sentences.

Chapter 7, The Scope of Strategy, entire section

Merged the first and last paragraphs.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Complete Reasoning, first paragraph

Changed “do not find” to “never find” in the fourth sentence.

Changed “problem that contains all other problems” to “problem that contains all other problems in pursuing Wisdom” in the eighth sentence.

Changes in Version 2011.11.28

Chapter 1, Choosing Frame Well, last paragraph, last sentence

“In the words of Dwight Eisenhower, “If a problem cannot be solved, expand it.””

was moved into the end of the footnote.

Chapter 1, Useful Frames, first paragraph

Changed “We” to “Because processes have no bounds in time, we” in the fourth sentence.

Changed “We” to “Because events have bounds in time, we” in the seventh sentence.

Chapter 1, *The Need for Timeless Frames*, third paragraph, end

Added the footnote:

“¹¹ In his general relativity theory (“theory of invariance”), Einstein has us view physics from a four-dimensional (“space-time”) frame. As we shall see, the boundlessly pragmatic approach to deciding well put forth in this work has us view the process of refining everyday thinking (“the whole of science”) from a four-dimensional frame. This boundlessly pragmatic approach calls for us to replace formal logic with a concept of reason that surpasses formal logic. Einstein’s close friend, Kurt Gödel, sought to surpass formal logic by proving the existence of intuition. In contrast, this pragmatic approach surpasses formal logic by demonstrating the usefulness of a concept of beauty based on the symmetry of pursuing the timeless end of deciding well.”

Chapter 1, Values, fifth paragraph, footnote

Changed “Allowing for experience” to “Allowing experience” in the first sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, last paragraph, last sentence

“Like the Toyota system, it helps us break down overwhelmingly complex problems into problems we can solve.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was promoted to a new paragraph and changed to:

“Like the Toyota system, **this multiple-frame approach to deciding well** helps us break down overwhelmingly complex problems into problems we can solve. **As we shall see, it helps us find not only conflicts but also holes in our belief systems.**”

Chapter 1, *Steps for Building Multiple-Frame Models*, last paragraph, footnote

Changed “Logical **completeness** is a means to **efficiency**” to “Logic is a means to **Wisdom**” in the fourth sentence.

Deleted the last sentence: “**For more about logical completeness, see the last two chapters.**”

Changes in Version 2011.11.30

Preface, fourth paragraph

Changed “**construct**” to “**build**” and “**building**” to “**constructing**” in the second sentence.

Changed “**build**” to “**construct**” in the third sentence.

Chapter 1, Values, second paragraph

Changed “linking or re-linking” to “linking (**or re-linking**)” in the last sentence.

Chapter 1, *The Need for Timeless Frames*, third paragraph, footnote

Changed “four-dimensional” to “four-dimensional (**“reasonably-complete”**)” in the second sentence.

Chapter 2, *Pleasure and Pain*, second to last paragraph

Changed “to **construct**” to “to” in the last sentence.

Chapter 2, *Tools for Pursuing Pleasure and Joy*, last paragraph

Changed “**hence to**” to “**to help us to**” in the second to last sentence.

Changed “**, Dante’s seven deadly sins:**” to “**:**” in the last sentence.

Chapter 2, *Chicago Screwdrivers*, entire section

Deleted the title and moved the paragraph to the end of the chapter.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, *Three Common Mistakes*, second paragraph

Changed “people” to “us” in the second sentence.

Chapter 3, *Contemplating the Way Forward*, first paragraph

Changed “beautifully” to “well” in the last sentence (2 occurrences).

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, second paragraph

Changed “compute π ” to “compute π to any number of decimal places” in the first and last sentences (2 occurrences).

Chapter 3, *Public Entropy*, first paragraph, last two sentences

“We may call this measure *public entropy* and the transcendental end of the process of lowering this measure *zero public entropy*. *Zero public entropy is the dynamic analogue of and alternative to Pareto optimality.*”⁶

“*Pareto optimality is* the state of the world in which it is impossible to make any person better off without making at least one other person worse off.”

were changed to:

“We may call this measure *public entropy* and the transcendental end of the process of lowering this measure *zero public entropy*.”⁶

“*Zero public entropy is the dynamic analogue of and alternative to Pareto optimality*, the state of the world in which it is impossible to make any person better off without making at least one other person worse off.”

Chapter 3, *Public Entropy*, second paragraph, second through fourth sentences

“To explain what happens in economies, which includes what happens as we learn to live ever more wisely, we need to explain based not on what happens at the margins, but rather on what happens *as we create knowledge, which calls for us to consider what happens* in the infinitely long run. *Studying what happens to people in the infinitely long run is the equivalent of studying what happens in physics at near absolute zero temperature. A group of people working together perfectly is the public analogue of a Bose-Einstein condensate.*”⁷

“*A Bose-Einstein condensate is the state of matter of a group of weakly interacting bosons (quantum-level objects with integer spin) very close to* their lowest energy state. *In this state, groups of bosons* act as if they were a single boson.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“To explain what happens in economies, which includes what happens as we learn to live ever more wisely, we need to explain based not on what happens at the margins, but rather on what happens in the infinitely long run.”

“**Studying what happens to people in the infinitely long run is like studying what happens in physics at near absolute zero temperature. People working together perfectly act as if they were a single person deciding perfectly.** Weakly interacting bosons (quantum-level objects with integer spin) **at** their lowest energy state act as if they were a single boson.”

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, second paragraph

Changed “**this interpretation**” to “**it**” in the second sentence.

Chapter 3, *The Elephant in the Room*, first paragraph

Changed “link **or re-link**” to “link” in the first sentence.

Chapter 4, *Refining Deciding Well*, fourth paragraph, footnote

Changed “link **or re-link**” to “link” in the fourth sentence.

Chapter 6, *Schweitzer's Universal Spiritual Need*, last paragraph, last sentence

“**From behind this veil, zero public entropy is all people deciding perfectly.**”

was deleted.

Chapter 6, *Einstein's Twin Warnings*, first paragraph

Changed “link **or re-link**” to “link” in the second sentence.

Chapter 7, *Timeless OODA Loop Analysis*, first paragraph, fourth sentence

“**This is a biological concept.**”

was deleted.

Chapter 8, *Useful Reasoning*, first paragraph

Changed “problems” to “**given** problems” in the second sentence.

Changes in Version 2011.12.05

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Acknowledgments, last paragraph

Changed “**Comptroller** of the Department of Defense under its **first six** secretaries” to “**special assistant to the first secretary** of the Department of Defense (1947–49)**and comptroller** under its **next five** secretaries” in the third sentence.

Preface, last paragraph, last two sentences

“**Many will want to dismiss it as a timeless mishmash, as a disordered collection of ideas from all ages. It has order, but not the order that they have learned to expect.**”

were changed to:

“**Its reason is not the reason that most people** have learned to expect.”

Chapter 1, Ever More Complete Multiple-Frame Models, last paragraph, footnote

Changed “Logic” back to “**Logical completeness**” in the fourth sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, fifth paragraph, last sentence and paragraph break

“**It provides us with a more robust means of learning by doing.**” and paragraph break were deleted.

Chapter 2, Pleasure and Pain, first paragraph, last two sentences

“**We often experience pain at the start of healthy exercise. We often experience** pleasure when eating unhealthy foods.”

were changed to:

“**For example, we often experience pain at the start of healthy exercise and** pleasure when eating unhealthy foods.”

Chapter 2, *Three Common Mistakes*, second paragraph

Changed “**This**” to “**As we shall see, this**” in the last sentence.

Chapter 2, A Strategy for Learning Well, last paragraph

“As we saw in the EOQ/RTS example, using temporal tools for finding problems to solve tends to blind us to the best problem to solve. Just as we ought never to use hammers to drive in screws, we ought never to use temporal tools to find problems to solve. One of the greatest dangers of this comes from using modern economic tools to find problems to solve. Consider the concepts of **human capital**, work, and leisure. From

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

the temporal view of modern economics, **human capital is knowledge that raises our income**; work is **an unpleasant** activity that others pay people to perform; and leisure is time spent not working. People **aim to please themselves by consuming economic goods during their leisure time**. They work in order to **consume**. Living well calls for them to **balance** work and leisure. In contrast, from the multiplex view, **human capital is knowledge that helps us to satisfy our needs**; work is *any* activity that others pay us to perform; and leisure is time spent satisfying our **needs**. We **aim to enjoy ourselves by pursuing the virtuous circle of pleasure and joy**. We work in order to live well. Living well calls for **us to combine** work and leisure. In religious terms, finding our true calling is a blessing.”

was changed back to a subsection and inserted in front of the ***Tools for Pursuing Wisdom*** subsection:

Chicago Screwdrivers

As we saw in the EOQ/RTS example, using temporal tools for finding problems to solve tends to blind us to the best problem to solve. Just as we ought never to use hammers to drive in screws, we ought never to use temporal tools to find problems to solve. One of the greatest dangers of this comes from using modern economic tools to find problems to solve. Consider the concepts of work and leisure. From the temporal view of modern economics, work is *unpleasant* activity that others pay people to perform and leisure is time spent not working. People work in order to **satisfy their wants**. **Satisfying wants** calls for them to *balancing* work and leisure. In contrast, from the multiplex view, work is *any* activity that others pay us to perform and leisure is time spent satisfying our **needs**. We work in order to live well. Living well calls for *combining* work and leisure. In religious terms, finding our true calling is a blessing.”

Chapter 4, Refining Everyday Thinking, fourth paragraph

“Two rules arise from the distinction between descriptions we use to predict and descriptions we use to explain. First, we ought to use the term ‘cause’ only with descriptions that we use to explain. We explain causes. ‘Cause’ is a cue for a tool for helping us to find problems to solve within a given set of conditions. Second, we need not worry about the realism of the descriptions that we use to predict. We need realism to help us find problems to solve, not to help us predict.”

was deleted.

Chapter 4, A Crude Look at the Whole, first paragraph, footnote

“¹¹ We may speculate that the release of stress from these networks **has a probability distribution with a fat tail**. For a clear and concise explanation of why this is important, see the March 23, 2006 *Financial Times* article by Benoît Mandelbrot and Nassim Taleb titled “A Focus on Exceptions that Prove the Rule,” available online at <http://www.ft.com/cms/s/2/5372968a-ba82-11da-980d->

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

0000779e2340,dwp_uuid=77a9a0e8-b442-11da-bd61-0000779e2340.html> (14 October 2011). For more on [this](#), see the last chapter.”

was changed to:

“¹¹ [Given the self-similarity of pursuing Wisdom](#), we may speculate that the release of stress from these networks follows [a power-law distribution](#). For more on [power-law distributions in pursuing Wisdom](#), see the last chapter.”

Chapter 4, *A Crude Look at the Whole*, second paragraph

Changed “prevent embacles by pursuing Wisdom” to “[best](#) prevent embacles by [deciding well using the multiple-frame approach to pursuing Wisdom](#)” in the last sentence.

Chapter 4, *Useful Reminders*, last paragraph

Changed “[Finally, pursuing](#)” to “[Pursuing](#)” in the first sentence.

Chapter 5, *Promote Pursuing Wisdom, not Temporal Order*, second paragraph

Changed “twenty” to “[twenty-five](#)” in the last sentence.

Chapter 5, *Liberalism*, fourth paragraph

Changed “[boyhood home](#)” to “[hometown of Boston](#)” in the second sentence.

Chapter 6, *A Common Timeless End*, second paragraph, first sentence

“[We may call the timeless end of satisfying our need for mystical oneness *Wholeness*](#).”

was inserted in front of the last sentence of the first paragraph.

Chapter 6, *A Common Timeless End*, last paragraph

Changed “[the modern](#)” to “[a logical](#)” in the first sentence.

Chapter 7, *A Revolutionary Anomaly*, first paragraph

Changed “[ought](#)” to “[the solution to the anomaly he discovered was for](#)” in the first sentence.

Deleted “[common ground, for](#)” from the first sentence.

Chapter 7, *A Revolutionary Anomaly*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “common ground” to “common ground **based on symmetry**” in the first sentence.

Chapter 8, Complete Reasoning, last paragraph

Changed “**complete** means of refining itself” to “**self-referential** means of refining itself (a means of refining itself that contains a means of refining itself that contains a means of refining itself...)” in the second sentence.

Chapter 8, Natural Reasoning, first paragraph

Changed “better **view**” to “better” in the last sentence.

Chapter 8, Summary, first paragraph

Added paragraph break before the second to last sentence.

Changed “characterize” back to “**seem to** characterize” in the first sentence of the new last paragraph.

Changes in Version 2011.12.10

Chapter 1, *The EOQ/RTS Example*, fourth paragraph, sixth sentence

“**We cannot price useful knowledge by measuring the value of the resources it replaces, except in the special case in which we know exactly when and how we will use the knowledge.**”

was changed to:

“**Except in the special case in which we know exactly when and how we will use the knowledge, we cannot price useful knowledge by measuring the value of the resources it replaces.**”

Chapter 1, *The Need for Timeless Frames*, first paragraph

Changed “who **are** locked” to “who **have** locked **themselves into**” in the first sentence.

Chapter 1, Values, first paragraph

Changed “**all that can be known**” to “**what we need to know in order to pursue timeless ends well**” in the last sentence.

Chapter 1, Values, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “aspire to learn” to “need to know in order to pursue timeless ends well” in the fifth sentence.

Chapter 1, *The Need for Timeless Frames*, third paragraph, footnote

“¹¹ In his **general relativity** theory (“theory of invariance”), Einstein has us view physics from a four-dimensional (“space-time”) frame. As we shall see, the boundlessly pragmatic approach to deciding well put forth in this work has us view the process of refining everyday thinking (“the whole of science”) from a four-dimensional (“reasonably-complete”) frame. **This boundlessly pragmatic approach calls for us to replace formal logic with** a concept of reason that surpasses formal logic. **Einstein’s close friend, Kurt Gödel, sought to surpass formal logic by proving the existence of intuition. In contrast, this pragmatic approach surpasses formal logic by demonstrating the usefulness of a concept of beauty based** on the symmetry of pursuing the timeless end of deciding well.”

was changed to:

“¹¹ In his theory of invariance (“relativity theory”), Einstein has us view physics from a four-dimensional (“space-time”) frame. As we shall see, the boundlessly pragmatic approach to deciding well put forth in this work has us view the process of refining everyday thinking (“the whole of science”) from a four-dimensional (“reasonably-complete”) frame, **which uses** a concept of reason that surpasses logic. **We base the super-logical part of this reason not on the intuition that Kurt Gödel failed to prove exists, but rather** on the symmetry of pursuing the timeless end of deciding well.”

Chapter 1, *Steps for Building Multiple-Frame Models*, fourth paragraph, last three sentences

“Regrettably, we lack the knowledge to **pursue them perfectly. This includes the knowledge of how to think clearly** across frames. Because we lack **the knowledge of how to think clearly across frames**, it useful for us to think of pursuing Wisdom and the Truth as separate pursuits, each subject to its own set of problems.”

were changed to:

“Regrettably, we lack the knowledge of how to think **perfectly** across frames. Because we lack **this** knowledge, it useful for us to think of pursuing Wisdom and the Truth as separate pursuits, each subject to its own set of problems.”

Chapter 1, *Steps for Building Multiple-Frame Models*, last paragraph, last two sentences

“**Like the Toyota system, this multiple-frame approach to deciding well helps us break down overwhelmingly complex problems into problems we can solve.** As we shall see, **it** helps us find not only conflicts but also holes in our belief systems.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“As we shall see, **this multiple-frame approach to deciding well** helps us find not only conflicts but also holes in our belief systems.”

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, third paragraph

Changed “**10¹²** (a trillion)” to “a trillion (**10¹²**)” in the first sentence.

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, fourth paragraph

Changed “**10²⁴** (a trillion squared)” to “a trillion squared (**10²⁴**)” in the first sentence.

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, last paragraph

Changed “**10²⁴**” to “**a trillion squared**” in the last sentence.

Chapter 3, *Public Entropy*, second paragraph, first two sentences, including footnote

“**Modern economists such as Paul Samuelson were right to look to thermodynamics for models of how large groups of people will act, but were wrong to look to classical thermodynamics.** To explain what happens in economies, which includes what happens as we learn to live ever more wisely, we need to explain based not on what happens at the margins, but rather on what happens in the infinitely long run.”

“⁷ Studying what happens to people in the infinitely long run is like studying what happens in physics at near absolute zero temperature. People working together perfectly act as if they were a single person deciding perfectly. **Weakly interacting bosons** (quantum-level objects with integer spin) at their lowest energy state act as if they were a single boson.”

were changed to:

“To explain what happens in economies, which includes what happens as we learn to live ever more wisely, we need to explain based not on what happens at the margins, but rather on what happens in the infinitely long run.”

“⁷ **Modern economists such as Paul Samuelson were right to look to thermodynamics for models, but were wrong to look to classical thermodynamics.** Studying what happens to people in the infinitely long run is like studying what happens in physics at near absolute zero temperature. People working together perfectly act as if they were a single person deciding perfectly. **Similarly, weakly interacting bosons** (quantum-level objects with integer spin) at their lowest energy state act as if they were a single boson.”

Chapter 3, *Three Approaches to Policy*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**knowledge**” to “**wisdom**” in the last sentence.

Chapter 3, The Elephant in the Room, third paragraph

Changed “**a research program**” to “**and so**” in the last sentence.

Chapter 4, Refining Everyday Thinking, fourth paragraph, footnote, last sentence

“Newtonian mechanics is good for predicting the behavior of large **items** moving at low speeds, but poor at predicting **either** the behavior of very small objects or **the behavior of** objects moving at very high speeds **relative to one another.**”

was changed to:

“Newtonian mechanics is good for predicting the behavior of large **objects** moving at low speeds, but poor at predicting the behavior of very small objects or objects moving at very high speeds.”

Chapter 4, Recursivity, last paragraph

Changed “the view” to “the **modern** view” in the second sentence.

Changed “**is a waste of** resources” to “**wastes** resources” in the third sentence.

Changed “**From** the view” to “**In contrast, from the multiplex** view” in the fourth sentence.

Changed “choose **among these**” to “choose” in the last sentence.

Chapter 4, Academic Fields, second paragraph

Changed “**the**” to “**this**” in the second sentence.

Chapter 4, Academic Fields, fourth paragraph

Changed “**it**” to “**they**” in the last sentence.

Chapter 6, Schweitzer’s Universal Spiritual Need, third paragraph, last two sentences

“**We see this in ancient Hinduism’s failure to explain adequately how merit (*karma*), which concerns our relation with the infinite Being, relates to worldly duty (*dharma*), which concerns our relation with life. The resulting caste system greatly hindered progress toward Wisdom.**”

were deleted. Merged paragraph with the following paragraph.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 6, *Schweitzer's Universal Spiritual Need*, new third paragraph, sixth sentence

“Incomplete forms of ethical mysticism include those of such modern Western movements as nationalism, socialism, national socialism, international socialism, and communism.”

was deleted.

Chapter 6, *Schweitzer's Universal Spiritual Need*, last paragraph

Changed “revering life well” to “justice” in the first sentence.

Chapter 6, *Einstein's Twin Warnings*, first paragraph

Changed “the words of Einstein:” to “Einstein's words” in the fourth sentence.

Chapter 6, *A Common Timeless End*, last paragraph, last two sentences

“From the multiplex view, the reason these two beliefs conflict is that we do not know which is the better belief. We best settle this conflict by having these beliefs compete in the marketplace of ideas for helping us pursue Wisdom.”

were changed to:

“From the multiplex view, we best settle this conflict by having these beliefs compete in the marketplace of tools for helping us pursue Wisdom.”

Chapter 8, *Complete Reasoning*, first paragraph

Changed “prove” to “disprove” in the fourth through seventh sentences (three occurrences).

Deleted the first sentence of the footnote: “Note that these two arguments parallel the basic arguments Kurt Gödel used in his incompleteness theorems.”

Changed “Note too” to “Note” in the new first sentence of the footnote.

Chapter 8, *Complete Reasoning*, last paragraph, footnote

Changed “Truth market” to “market for tools for helping us believe well” in the second sentence.

Changed “Truth market” to “market for tools for helping us decide well” in the seventh sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2011.12.16

Chapter 1, Choosing Frames Well, last paragraph, footnote

Changed “**Later**, Kurt Gödel” to “Kurt Gödel **later**” in the seventh sentence.

Chapter 1, *Invariant Values*, first paragraph

Changed “to **decide foolishly**” to “to **blind ourselves to the full range of opportunities for learning by doing**” in the last sentence.

Chapter 3, Contemplating the Way Forward, all five paragraphs

“Pursuing Wisdom calls for us to **think beautifully about how to decide** well. We can use the concept of *transcendental recursive objects* to help us to **contemplate well about deciding** well.

“**Recursive objects are objects that we know better by means of a cycle** of steps in which the result of one cycle becomes the basis for the next cycle. **We may think of these recursive processes as having three basic parts. The first is the cycle of steps that we apply repeatedly; the second is the result of each cycle; and the third is the result of the process.**

“Consider the problem of dividing a bag of marbles equally among six children. We can solve this simple problem using a recursive process that **ends**. The steps in this process are removing six marbles from the bag; giving each child a marble; and repeating the first two steps until there are less than six marbles in the bag. In this simple example, **the result of each cycle is the number of marbles each child has received, and the result of the process** is the number of marbles each child will receive.

“Complete knowledge of some recursive objects will always transcend our knowledge of them. **We can never know these objects completely.** The best we can do is to find a recursive process that will yield ever better approximations of them. The mathematical constant π is one such object. We can define π exactly (as the ratio of the circumference to the diameter of a Euclidean circle), but can never reduce π to an algebraic expression. Wisdom is another such object. We can define Wisdom exactly (as knowledge that allows a being to decide perfectly), but we can never reduce Wisdom to a logical expression.

“**Because the recursive process for knowing transcendent objects is endless, we may reasonably call the result of a cycle its *timeless end* and the result of the process its *transcendent end*. In computing π , the timeless and transcendent ends are both numbers. In pursuing Wisdom, the timeless end is ever better approximations of Wisdom and the transcendental end is complete knowledge of Wisdom.** The form of the **timeless** end is a

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

set of partial descriptions of the world. These descriptions ought to be as simple as possible, but not simpler; and the set of descriptions ought to be as small as possible, but not smaller.² The form of **the transcendental end** is the most useful form for a perfectly wise being in deciding well.³”

were changed to:

“Pursuing Wisdom calls for us to **contemplate well** about **deciding well**. We can use the concept of a *transcendental recursive object* to help us to **do so**.

“**To understand the concept of a *transcendental recursive object*, we need to understand recursive processes, programs, and objects. A *recursive process* is a sequence of steps in which the result of one cycle **through these steps** becomes the basis for the next cycle. A **recursive program** is a recursive process that contains a step that halts the process when a given condition is true. A **recursive object** is an object that we come to know by means of a **recursive program**. Consider the problem of dividing a bag of marbles equally among six children. We can solve this simple problem using a recursive process that **halts when there are less than six marbles in the bag**. The steps in this process are removing six marbles from the bag; giving each child a marble; halting if there are less than six marbles in the bag; and repeating the first three steps. In this simple example, the **recursive object** is the number of marbles each child will receive.**

“Complete knowledge of some recursive objects will always transcend our knowledge of them. The best we can do is to find a recursive process that will yield ever better approximations of them. The mathematical constant π is one such object. We can define π exactly as the ratio of the circumference to the diameter of a Euclidean circle, but can never reduce π to an algebraic expression. Wisdom is another such object. We can define Wisdom exactly as knowledge that allows a being to decide perfectly, but we can never reduce Wisdom to a logical expression.

“**Many recursive processes will yield ever better approximations of π . We can use what we believe is the best of these processes to create a recursive program for producing ever better approximations of π . We may call the ever better approximates of π the *timeless end* of this program. The form of **this end** is a number. We may also call the complete knowledge of π the *transcendental end* of this program. The form of **this end** is also a number.**

“**Similarly, many recursive processes will yield ever better approximations of Wisdom. We can use what we believe is the best of these processes to create a recursive program for producing ever better approximations of Wisdom. We may call the ever better approximates of Wisdom the *timeless end* of this program. The form of **this end** is a set of partial descriptions of the world. These descriptions ought to be as simple as possible, but not simpler; and the set of descriptions ought to be as small as possible, but not smaller.² We may also call complete knowledge of Wisdom the *transcendental end* of **this program**. The form of **this end** is the most useful form for a perfectly wise being in deciding well.³”**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Public Entropy*, second paragraph

Changed “seasoned **special forces**” to “**highly-trained**, seasoned **soldiers**” in the sixth sentence.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, last paragraph, footnote, first two sentences

“**This presumes that the Universe has both a beginning and an end. If not**, the term “a nearly infinite number” should be “an infinite number.””

were changed to:

“**If the world is infinite, then** the terms ‘a nearly infinite number’ should be ‘an infinite number.’”

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, last paragraph, footnote

Changed “**Universe**” to “**world**” in the new second sentence.

Changed “**future** possible” to “possible” in the last sentence.

Chapter 7, *The Scope of Game Theory*, first paragraph, first footnote

Changed “**on** recursion” to “**about** recursion” in the first sentence.

Chapter 8, *Complete Reasoning*, last paragraph

Changed “(a means of refining itself that contains a means of refining itself that contains a means of refining itself...)” to “**, which is to say a process of reasoning that contains** a means of refining itself that contains a means of refining itself that contains a means of refining itself...” in the first sentence.

Changes in Version 2011.12.17

Preface, seventh paragraph, last sentence

“**Lovers of wisdom may find in this concept a beautiful tool for describing the ideal way toward all that is wise, hence toward all that is good, true, and just.**”

was deleted.

Chapter 3, *Contemplating the Way Forward*, last three paragraphs

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Complete knowledge of some recursive objects will always transcend our knowledge of them. The best we can do is to find a recursive process that will yield ever better approximations of them. The mathematical constant π is one such object. We can define π exactly as the ratio of the circumference to the diameter of a Euclidean circle, but can never reduce π to an algebraic expression. Wisdom is another such object. We can define Wisdom exactly as knowledge that allows a being to decide perfectly, but we can never reduce Wisdom to a logical expression.

“Many recursive processes will yield ever better approximations of π . We can use what we believe is the best of these processes to create a recursive program for producing ever better approximations of π . We may call the ever better approximates of π the *timeless end* of this program. The form of this end is a number. We may also call complete knowledge of π the *transcendental end* of this program. The form of this end is also a number.

“Similarly, many recursive processes will yield ever better approximations of Wisdom. We can use what we believe is the best of these processes to create a recursive program for producing ever better approximations of Wisdom. We may call the ever better approximates of Wisdom the *timeless end* of this program. The form of this end is a set of partial descriptions of the world. These descriptions ought to be as simple as possible, but not simpler; and the set of descriptions ought to be as small as possible, but not smaller.² We may also call complete knowledge of Wisdom the *transcendental end* of this program. The form of this end is the most useful form for a perfectly wise being in deciding well.³”

“²The inspiration for this belief about **the timeless end of deciding well** was Albert Einstein’s theory of knowledge: “Physical concepts are free creations of the human mind, and are not, however it may seem, uniquely determined by the external world. In our endeavor to understand reality we are somewhat like a man trying to understand the mechanism of a closed watch. He sees the face and the moving hands, even hears its ticking, but he has no way of opening the case. If he is ingenious he may form some picture of a mechanism which could be responsible for all the things he observes, but he may never be quite sure his picture is the only one which could explain his observations. He will never be able to compare his picture with the real mechanism and he cannot even imagine the possibility or the meaning of such a comparison. But he certainly believes that, as his knowledge increases, his picture of reality will become simpler and simpler and will explain a wider and wider range of his sensuous impressions. He may also believe in the existence of the ideal limit of knowledge and that it is approached by the human mind. He may call this ideal limit the objective truth (Einstein, Albert, *The Evolution of Physics: From Early Concepts to Relativity and Quanta*, New York: Simon and Schuster, 2008, p. 31).””

“³ From the multiplex view, our need for simple models stems from our need to pursue Wisdom efficiently, not from the presumption that the Truth is knowable, or from the related reductionist precept that simpler models tend to be true.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“Complete knowledge of some recursive objects will always transcend our knowledge of them. The best we can do is to find a recursive process that will yield ever better approximations of them. The mathematical constant π , **which is the ratio of the circumference to the diameter of a Euclidean circle**, is one such object. Many recursive processes will yield ever better approximations of π . We can use what we believe is the best of these processes to create a recursive program for producing ever better approximations of π . We may call the ever better approximates of π the *timeless end* of this program. The form of this end is a number. We may also call complete knowledge of π the *transcendental end* of this program. The form of this end is also a number.

“**Wisdom, which is the knowledge that allows a being to decide perfectly, is another transcendental recursive object.** Many recursive processes will yield ever better approximations of Wisdom. We can use what we believe is the best of these processes to create a recursive program for producing ever better approximations of Wisdom. We may call the ever better approximates of Wisdom the *timeless end* of this program. The form of this end is a set of partial descriptions of the world. These descriptions ought to be as simple as possible, but not simpler; and the set of descriptions ought to be as small as possible, but not smaller.² We may also call complete knowledge of Wisdom the *transcendental end* of this program. The form of this end is the most useful form for a perfectly wise being in deciding well.”

“² **From the multiplex view, our need for economy in models stems from our need to pursue Wisdom efficiently, not from the precept that simpler models tend to be true. The proper supply-side precept holds that simpler models tend to be more useful in pursuing Wisdom, hence in pursuing the Truth.** The inspiration for this belief about **the need for economy in pursuing Wisdom** was Albert Einstein’s theory of knowledge: “Physical concepts are free creations of the human mind, and are not, however it may seem, uniquely determined by the external world. In our endeavor to understand reality we are somewhat like a man trying to understand the mechanism of a closed watch. He sees the face and the moving hands, even hears its ticking, but he has no way of opening the case. If he is ingenious he may form some picture of a mechanism which could be responsible for all the things he observes, but he may never be quite sure his picture is the only one which could explain his observations. He will never be able to compare his picture with the real mechanism and he cannot even imagine the possibility or the meaning of such a comparison. But he certainly believes that, as his knowledge increases, his picture of reality will become simpler and simpler and will explain a wider and wider range of his sensuous impressions. He may also believe in the existence of the ideal limit of knowledge and that it is approached by the human mind. He may call this ideal limit the objective truth (Einstein, Albert, *The Evolution of Physics: From Early Concepts to Relativity and Quanta*, New York: Simon and Schuster, 2008, p. 31).”

Chapter 3, *Public Entropy*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “with highly-trained, seasoned soldiers **one person at a time**” to “**one at a time** with highly trained **and** seasoned soldiers” in the sixth sentence.

Chapter 3, *Public Entropy*, second paragraph, footnote, last two sentences

“People working together perfectly act as if they were a single person deciding perfectly. **Similarly**, weakly interacting bosons (**quantum-level objects with integer spin**) at their lowest energy state act as if they were a single boson.”

was changed to:

“People working together perfectly act as if they were a single person deciding perfectly, **much as** weakly interacting bosons at their lowest energy state act as if they were a single boson.”

Chapter 4, *Recursivity*, last paragraph, footnote, last three sentences

“Arguably, this is because they see their role as helping **people** believe well rather than helping **them** to **pursue Wisdom**. **We see this in the distinction between Thomas Kuhn’s concept of a paradigm shift as a change in the way we conceive of the world and the popular concept of a paradigm shift as a change in the way we see the world that changes the world for the better. The people who shifted Kuhn’s paradigm took a pragmatic view.**”

were changed to:

“Arguably, this is because they see their role as helping **us** to believe well rather than to **decide well**. **Deciding well calls for considering ultimate ends, which in turn calls for confronting the limits of modern reason.**”

Chapter 8, *Complete Reasoning*, first paragraph, first sentence

“**Models for pursuing timeless ends** can never be both logically consistent and complete.”

was changed to:

“**The EOQ/RTS model showed the wisdom of using models for pursuing timeless ends to help us find problems to solve. These models** can never be both logically consistent and complete.”

Chapter 8, *Complete Reasoning*, first paragraph

Changed “**this** model” to “**a model for pursuing a timeless end**” in the new fifth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2011.12.20

Acknowledgments, fourth paragraph

Changed “Ohno” to “Ohno and subsequent tour of Japanese factories practicing just-in-time manufacturing” in the last sentence.

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, second paragraph

Changed “computable in practice” to “in practice” in the second sentence.

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, last paragraph

Changed “calculating well” to “calculating” in the first sentence.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, last paragraph, footnote

Changed “subtracting” to “removing the members of” in the all (3 occurrences).

Changed “set of rational” to “set” in the fifth sentence.

Chapter 4, *Refining Everyday Thinking*, first paragraph

Changed “science” to “the whole of science” in the first sentence.

Chapter 4, *Self-Similarity*, first paragraph

Changed “uncertain predictions” to “uncertainty in prediction” and “incomplete explanations” to “incompleteness in explanation” in the second sentence.

Chapter 4, *Academic Fields*, first paragraph

Changed “the need” to “our need” in the last sentence.

Chapter 4, *Academic Fields*, second paragraph

Changed “the need” to “our need” in the first sentence.

Chapter 4, *A Crude Look at the Whole*, second paragraph

Changed “a debacle, the sudden release” to “debacles, sudden releases” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, third paragraph

Changed “owe those who created the knowledge that we use freely” to “cannot pay to whom they are due” in the second sentence.

Chapter 6, A Common Timeless End, last paragraph

Changed “tools” back to “ideas” in the last sentence.

Chapter 7, *Boyd's Grand Strategy*, last paragraph, footnote

Changed “more about logical consistency and completeness” to “the boundlessly pragmatic solution to this dilemma” in the last sentence.

Chapter 8, Useful Reasoning, end

Inserted the following paragraph before the footnote.

“In deciding well using the multiple-frame approach to pursuing Wisdom, we seek to disprove the existence of an *a priori* approach to the whole of science by taking an *a priori* approach to the whole of science. In doing so, we transcend logic.”

Changed the last two paragraphs of the footnote from:

“These students may find that quantum mechanics offers deeper insights into the problems of language than nineteenth-century atomic or biological models offer. For example, they may find decision-oriented interpretations of quantum mechanics to be useful in thinking through the problems of existence and consciousness, e.g., whether the means to land two people on the moon and bring them safely back to earth existed at 12 A.M. zero meridian time on January 1, 2000.”

to:

“These students may find that quantum mechanics offers deeper insights into the problems of language than nineteenth-century atomic or biological models offer, especially concerning questions of existence, potential existence, and consciousness. When did the means to land people on the moon and bring them safely back to the earth first exist? Does it still exist? Why?”

Chapter 8, Complete Reasoning, first paragraph

“The EOQ/RTS model showed the wisdom of using models for pursuing timeless ends to help us find problems to solve. These models can never be both logically consistent and complete. Each contains the belief that we will never know the true meaning of its timeless end. If we find this meaning, the model is complete, but inconsistent. If we never find this meaning, the model is consistent, but incomplete. Further, to disprove

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

that a model for pursuing a timeless end is complete, we need a more complete model. To disprove that this model is complete, we need a still more complete model. To disprove that this model is complete, we need a still more complete model. At the limit of this process of ever-increasing completeness are models of the problem that contains all other problems in pursuing Wisdom, which is the problem that multiple-frame models of pursuing Wisdom address.⁴”

“⁴ Note that the multiple-frame approach to pursuing Wisdom is consistent with Gödel’s belief in the existence of an *a priori* science, but not with the belief in the existence of an *a priori* science based on modern reasoning. Modern reasoning concerns the rules we use to bind beliefs together into coherent models of the world. The multiplex reasoning of deciding well concerns not only the rules we use to bind beliefs together into coherent models of the world, but also the rules we use to bind these models together into a coherent whole. Such reasoning is alien to modern science, but not to modern art. In the movie based on Carl Sagan’s novel, *Contact*, the person who discovered the primer for the alien plans explained the key insight that led to this discovery: “An alien intelligence is going to be more advanced and that means efficiency functioning on multiple levels and in multiple dimensions.” Such is the efficiency of zero public entropy.”

was deleted.

Chapter 8, Complete Reasoning, new first paragraph, third sentence

“Our rules for settling these conflicts (prefer easy to accept and easy to use models), would have us choose the EOQ over the RTS model as a tool for describing how best to set up tools.”

was deleted.

Chapter 8, Complete Reasoning, new first paragraph, new seventh sentence

“We prefer the RTS to the EOQ model as a tool for describing how best to set up tools.”

was deleted.

Chapter 8, Natural Reasoning, last paragraph

“People who seek empirical evidence supporting one or the other of these views would do well to study power-law distributions **in economies**.⁵ **These** distributions are the result of some self-similar process or processes. From the reductionist view of modern biology, it is not clear what this process or these processes might be. From the holistic view of this work, it is clear that this process is deciding well.”

“⁵ **These power-law distributions include the distributions of wealth and income studied by Vilfredo Pareto and the distribution of changes in commodity prices studied by Benoît Mandelbrot.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was reduced to a footnote to the first paragraph:

“⁵ People who seek empirical evidence supporting one or the other of these views would do well to study the **power-law distributions of wealth and income studied by Vilfredo Pareto and the power-law distribution of changes in commodity prices studied by Benoît Mandelbrot. Power-law** distributions are the result of some self-similar process or processes. From the reductionist view of modern biology, it is not clear what this process or these processes might be. From the holistic view of this work, it is clear that this process is deciding well.”

Changes in Version 2011.12.22

Chapter 2, *Tools for Pursuing Pleasure and Joy*, last paragraph

Changed “to help us **to** know” to “to help us know” in the second to last sentence.

Chapter 3, *Pursuing the Ring of Truth*, second paragraph

Changed “**timeless** frame” to “**skeletal** frame” in the second sentence.

Chapter 6, *Heroic Death*, second paragraph, first footnote

“¹¹ From an Aristotelian view , too small a willingness to risk ourselves for the sake of others is cowardly, and too great a willingness to risk ourselves for others is foolhardy or self-destructive (*Nicomachean Ethics*, book 2, chapter 2). Only the wise amount is truly heroic.”

was deleted.

Chapter 8, *Natural Reasoning*, first paragraph

Changed “**both** the supply **and demand** sides” to “**the demand as well as** the supply side” in the sixth sentence.

Changes in Version 2011.12.24

Acknowledgments, last paragraph

Changed “**My great uncle**, Wilfred James McNeil,” to “Wilfred James McNeil” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**My business ethics professor**, George Leland Bach,” to “George Leland Bach” in the fourth sentence.

Changed “**My father**, John Huntington Harris,” to “John Huntington Harris” in the fifth sentence.

Chapter 1, Choosing Frames Well, first paragraph

Changed “all removable ambiguity” to “all **currently** removable ambiguity” in the last sentence.

Chapter 3, Overcoming Constraints in Pursuing Wisdom, fourth paragraph

Changed “**today**” to “**2012**” in the first sentence.

Chapter 4, *Self-Similarity*, all three paragraphs

“We may think of science as the process of ridding ourselves of ever more ignorance about the world. This ignorance **takes the form of** uncertainty in prediction **and** incompleteness in explanation of causation. **In pursuing the timeless end of believing well, we need to address both types of ignorance.**”

“We explain causation on lower levels of abstraction than the level we are trying to explain. **When we choose a problem to solve, we choose to accept our current explanations of causation on the level of our chosen problem and on all higher levels. In effect, we choose to ignore our ignorance of causation on the level of our chosen problem and above. We embed this ignorance into our networks of knowledge in use.**”

“On the lowest level of abstraction, there exist no lower levels of abstraction from which to explain. From the modern view of the Copenhagen class of interpretations of quantum mechanics, quantum mechanics is the lowest level of abstraction that we can imagine. Searching for models that explain causation on the level of quantum mechanics at a lower level wastes resources. In contrast, from the multiplex view of the decision class, we ought to search lower levels for models that explain causation on the level of quantum mechanics *wisely*. More than one explanation may fit what we can sense.⁴ We ought to choose the explanation that best helps us pursue Wisdom.”

were changed to:

“We may think of science as the process of ridding ourselves of ever more ignorance about the world. This ignorance **includes** not only uncertainty in prediction, **but also** incompleteness in explanation of causation.

“We explain causation on lower levels of abstraction than the level we are trying to explain. On the lowest level of abstraction, there exist no lower levels of abstraction from which to explain. From the modern view of the Copenhagen class of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

interpretations of quantum mechanics, quantum mechanics is the lowest level of abstraction that we can imagine. Searching for models that explain causation on the level of quantum mechanics at a lower level wastes resources. In contrast, from the multiplex view of the decision class, we ought to search lower levels for models that explain causation on the level of quantum mechanics *wisely*. More than one explanation may fit what we can sense.⁴ We ought to choose the explanation that best helps us pursue Wisdom.

“When we choose a problem to solve, we choose to accept our current explanations of causation on the level of our chosen problem and on all higher levels. In effect, we choose to ignore our ignorance of causation on the level of our chosen problem and above. We embed this ignorance into our networks of knowledge in use.”

Chapter 4, A Crude Look at the Whole, second paragraph, last footnote, last sentence

“For more on power-law distributions in pursuing Wisdom, see the last chapter.”

was changed to:

“As we shall see in the last chapter, the existence of power-law distributions in economies undermines Darwinian evolution as the general theory for explaining the evolution of life.”

Chapter 8, Natural Reasoning, first paragraph, footnote

Changed “studied” to “discovered” in the first sentence (2 occurrences).

Changes in Version 2011.12.26

Chapter 1, Invariant Values, first paragraph, last sentence

“To choose other than these **invariant** values is to choose to blind ourselves to the full range of opportunities for learning by doing.”

was changed to:

“Regardless of our current beliefs and circumstances, pursuing the Good calls for pursuing Wisdom, hence for pursuing the Truth, Justice, Beauty, and all of the other boundless factors of deciding well. To choose to pursue other than these values is to choose to blind ourselves to the full range of opportunities for learning by doing.”

Chapter 5, Sovereignty, last paragraph, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In scientific terms, the claims that secure sovereign rights are propositions to be tested.”

was deleted.

Chapter 5, Sovereignty, last paragraph, footnote, last two sentences

“Governments, like people, are subject to virtuous and vicious cycles. Good governments tend to flourish; poor governments tend to fail.”

were deleted.

Chapter 5, The Explicit Experiment, second paragraph

Changed “a scientific view” to “an **eighteenth-century** scientific view” in the last sentence

Chapter 5, Lower Trade Barriers, first paragraph, footnote

Changed “case for free trade” to “case for free trade, **as the emergence of technology clusters attests**” in the last sentence.

Changes in Version 2011.12.30

Chapter 2, Invariant Tools for Deciding Well, last paragraph, footnote

Changed “**In this book**, Cohen” to “Cohen” in the last sentence.

Chapter 2, Chicago Screwdrivers, entire subsection

Returned this subsection to the end of the Consumption section.

Chapter 3, Overcoming Constraints in Pursuing Wisdom, last paragraph

Changed “people **who do not pursue Wisdom**” to “**other** people” in the second sentence.

Changed “pursue Wisdom” to “pursue Wisdom **using the multiple-frame approach**” in the second sentence (2 occurrences).

Chapter 6, A Common Timeless End, last paragraph, end

Added the sentence:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Current ignorance of the farther reaches of our nature prevents us from taking other than this brute force approach.”

Chapter 6, A Common Timeless End, first paragraph, first sentence

“Adding this frame allows us to think more clearly about the relation between pursuing the Good and pursuing Wisdom.”

was deleted.

Chapter 7, A Normal Anomaly, last paragraph

Changed “Game theory” to “Modern game theory” in the second sentence.

Chapter 7, A Revolutionary Anomaly, last paragraph, last sentence

“Only by addressing this universal problem can we remove the logs from our eyes.”

was deleted.

Chapter 7, Boyd’s Grand Strategy, last paragraph, footnote, last sentence

“For the boundlessly pragmatic solution to this dilemma, see the next chapter.”

was deleted.

Chapter 7, The Grandest Possible Strategy, first paragraph

Changed “and” to “for embracing the endless turbulence pursuing Wisdom creates, and” in the last sentence.

Chapter 8, Natural Reasoning, first paragraph, footnote, end

Added the sentence:

“These distributions are the result of people deciding to act based on what they currently believe.”

Appendix, Temporal Details, first paragraph, footnote

Changed “addresses” to “speeches” in the third sentence.

Changed “The author refreshed his memory with” to “Supplementary sources include” in the fourth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2011.12.31

Preface, third paragraph, end

Added the sentence:

“In short, these boundless factors are aspects of *complete* knowledge of how best to pursue the timeless end of deciding well.”

Chapter 4, *Recursivity*, last paragraph

Changed “In contrast, from” to “From” in the last sentence.

Changed “considering” to “us to consider” and “confronting” to “us to confront” in the last sentence of the footnote.

Added the following sentences to the end of the footnote:

“Models for pursuing timeless ends can never be both logically consistent and complete. Each contains the belief that we will never know the true meaning of its timeless end. If we find this meaning, the model is complete, but inconsistent. If we never find this meaning, the model is consistent, but incomplete.”

Chapter 6, *Schweitzer’s Universal Spiritual Need*, last paragraph, first two sentences

Changed “can help us refine our beliefs about justice” to “appears to confirm the justice of revering life well” in the first sentence.

Changed “He asks” to “This technique calls for” in the second sentence.

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote

Changed “deciding well is” to “Boyd conceived deciding well as” in the last sentence.

Chapter 8, *Useful Reasoning*, third paragraph, third sentence

“We may call the set of rules that we use to relate *these* beliefs *the rules of logic* after the rules of reason Aristotle used to relate beliefs in his pursuit of natural forms.”

was moved to the end of the paragraph and changed to:

“We may call the set of rules that we use to relate beliefs *within these frames* *the rules of logic* after the rules of reason Aristotle used to relate beliefs in his pursuit of natural forms.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Useful Reasoning, fourth paragraph, third sentence

“We may call the set of rules that we use to judge **the latter** *the rules of dialectics* after the dialectic form of discourse that Socrates used to explain what these timeless ends are not.”

was moved to the end of the paragraph and changed to:

“We may call the set of rules that we use to judge **these frames** *the rules of dialectics* after the dialectic form of discourse that Socrates used to explain what these timeless ends are not.”

Chapter 8, Useful Knowledge, fifth paragraph

Changed “**both** the rules of dialects **and** the rules of logic” to “the rules of dialectics, the rules of logic, **and the rules we use to relate these two sets of rules**” in the last sentence.

Chapter 8, Useful Knowledge, last paragraph

“**In deciding well using the multiple-frame approach to pursuing Wisdom, we seek to disprove the existence of an *a priori* approach to the whole of science by taking an *a priori* approach to the whole of science. In doing so, we transcend logic.**”³

³ Students of Western thought may better understand the distinction between logic, dialectics, and Reason by studying Ludwig Wittgenstein’s conversion from a picture theory of language based on a temporal view of the world to an instrumental theory of language based on the timeless end of living well. In his words, he came to believe that the goal of his later work in the philosophy of language was to “show the fly the way out of the fly-bottle.” These students may find that quantum mechanics offers deeper insights into the problems of language than nineteenth-century atomic or biological models offer, especially concerning questions of existence, potential existence, and consciousness. **When did the means to land people on the moon and bring them safely back to the earth first exist? Does it still exist? Why?”**

was changed to the following footnote at the end of the preceding paragraph:

³ Students of Western thought may better understand the distinction between logic, dialectics, and Reason by studying Ludwig Wittgenstein’s conversion from a picture theory of language based on a temporal view of the world to an instrumental theory of language based on the timeless end of living well. In his words, he came to believe that the goal of his later work in the philosophy of language was to “show the fly the way out of the fly-bottle.” These students may find that quantum mechanics offers deeper insights into the problems of language than nineteenth-century atomic or biological models offer, especially concerning questions of existence, potential existence, and consciousness.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix, Less is More, first paragraph, footnote

Changed “dark energy and dark matter” to “dark matter” in the last sentence.

Changes in Version 2012.01.11

Preface, last paragraph, end

Added the following sentences:

“In his theory of invariance (“relativity theory”), Einstein takes a four-dimensional (“space-time”) view of physics. Similarly, I take a four-dimensional (“reasonably-complete”) view of deciding well. In doing so, I overcome the limits of logic with the beauty that emerges from the symmetry of pursuing the timeless end of deciding well.”

Chapter 1, *The Need for Timeless Frames*, third paragraph, footnote

“¹¹ In his theory of invariance (“relativity theory”), Einstein has us view physics from a four-dimensional (“space-time”) frame. As we shall see, the boundlessly pragmatic approach to deciding well put forth in this work has us view the process of refining everyday thinking (“the whole of science”) from a four-dimensional (“reasonably-complete”) frame, which uses a concept of reason that transcends logic. We base the super-logical part of this reason not on the intuition that Kurt Gödel failed to prove exists, but rather on the symmetry of pursuing the timeless end of deciding well.”

was deleted.

Chapter 3, end

Added the section:

“Overcoming the Limits of Logic

From the multiple-frame view, all models for believing well contain the belief that we will never know the true meaning of the timeless end of believing well (the Truth). If a model for believing well contains this meaning, it is complete, but logically inconsistent. If it does not contain this meaning, it is logically consistent, but incomplete. Hence, no model for believing well can be both logically consistent and complete. If we are to believe well, we need to judge why we believe as we do using not only logic, but also the beauty that emerges from deciding well.”

Chapter 3, *The Elephant in the Room*, third paragraph

Changed “Life flourishes” to “As people, we flourish” in the fourth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “As people, we” to “We” in the fifth sentence.

Changed “and so for” to “which includes” in the last sentence.

Chapter 4, *Self-Similarity*, first paragraph, last sentence

“This ignorance includes not only uncertainty in prediction, but also incompleteness in explanation of causation.”

was changed to:

“This ignorance includes not only poor predictions, but also poor explanations of causation.”

Chapter 6, *Heroic Death*, second paragraph, last sentence

“Leaders who ritualize heroic death are either fools locked into myopic frames or knaves using others to help them pursue their myopic ends.”

was deleted.

Chapter 6, A Common Timeless End, last paragraph

Changed “multiplex view” to “boundlessly pragmatic view put forth in this work” in the second sentence.

Chapter 7, *A Revolutionary Anomaly*, title

Changed title to “*An Extraordinary Anomaly*.”

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote, third through last sentences

“For this universal model to be logically complete, it must apply to itself. For it to apply to itself, it must be a less than perfect approximation of itself, which is a logical contradiction. Boyd addressed this problem by embracing a pragmatic approach to believing well based on what we currently believe we know about the world. We see this modern sophistry most clearly in his essay, *Destruction and Creation*.”

were changed to:

“Regrettably, he based this model on modern explanations of evolution, thermodynamics, quantum mechanics, and Gödel’s incompleteness theorems. We see the resulting sophistry most clearly in his essay, *Destruction and Creation*.”

Chapter 8, Useful Reasoning, first paragraph, last three sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“This ignorance takes the form of **uncertain** predictions and **incomplete** explanations of causation. **Uncertainty in** predictions hinders us from solving given problems well. **Incompleteness in** explanations hinders us from finding the best problems to solve.”

were changed to:

“This ignorance takes the form of **poor** predictions and explanations of causation. **Poor** predictions hinder us from solving given problems well. **Poor** explanations hinder us from finding the best problems to solve.”

Chapter 8, Useful Reasoning, fourth paragraph

Changed “**these** timeless ends” to “timeless ends” in the last sentence.

Chapter 8, Complete Reasoning, first paragraph

“We may call a process of reasoning **that contains a self-referential means of refining itself, which is to say** a process of reasoning that contains a means of refining itself that contains a means of refining itself that contains a means of refining itself..., *reasonably complete*. So conceived, the reason of deciding well using the multiple-frame approach to pursuing Wisdom is reasonably complete. It helps us **think about** not only conflicts but also holes in our belief systems.⁴”

⁴ Consider the holism of W. V. O. Quine. From Quine’s view, *the philosophy of science is philosophy enough*. Our concept of completeness concerns the supply side of the market for tools for helping us *believe* well. We see conflicts in our belief systems. Now consider the holism of the multiple-frame approach to pursuing Wisdom. From the multiplex view, *the philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of pursuing Wisdom*. Our concept of completeness concerns the demand as well as the supply side of the market for tools for helping us *decide* well. We see holes as well as conflicts in our belief systems. Further, we believe that Morton White was right to criticize Quine’s philosophy for being too narrow and that Jaegwon Kim was right to criticize it for not having a normative element.”

was changed to:

“We may call a **truly boundless (hence self-referential)** process of reasoning, a process of reasoning that **effectively** contains a means of refining itself that contains a means of refining itself that contains a means of refining itself..., *reasonably complete*.⁴ So conceived, the reason of deciding well using the multiple-frame approach to pursuing Wisdom is reasonably complete. It helps us **find** not only conflicts but also holes in our belief systems.⁵”

⁴ **Modern reasoning concerns the rules we use to bind beliefs together into coherent models of the world. In contrast, *reasonably complete* reasoning concerns not only the**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

rules we use to bind beliefs together into coherent models of the world, but also the rules we use to bind these models together into a coherent whole. Such reasoning is alien to modern science, but not to modern art. In the movie based on Carl Sagan's novel, *Contact*, the person who discovered the primer for the alien plans explained the key insight that led to this discovery: "An alien intelligence is going to be more advanced and that means efficiency functioning on multiple levels and in multiple dimensions." Such is the efficiency of zero public entropy."

"^s Consider the holism of W. V. O. Quine. From Quine's view, *the philosophy of science is philosophy enough*. Our concept of completeness concerns the supply side of the market for tools for helping us *believe* well. We see conflicts in our belief systems. Now consider the holism of the multiple-frame approach to pursuing Wisdom. From the multiplex view, *the philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of pursuing Wisdom*. Our concept of completeness concerns the demand as well as the supply side of the market for tools for helping us *decide* well. We see holes as well as conflicts in our belief systems. Further, we believe that Morton White was right to criticize Quine's philosophy for being too narrow and that Jaegwon Kim was right to criticize it for not having a normative element."

Chapter 8, Natural Reasoning, first paragraph, footnote, end

Added the following:

"Deciding well calls for us to distinguish between tools for knowing our needs and tools for knowing how best to satisfy them."

Changes in Version 2012.01.14

Preface, third paragraph

Changed "inasmuch as" to "when" in the first sentence.

Chapter 1, *The Need for Timeless Frames*, title

Changed title to "*Seeing Through Apparent Miracles*."

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, second paragraph

Changed "computing π to any number of decimal places" to "computing π " in the last sentence.

Chapter 3, A Common Timeless End, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**multiplex view**” to “**boundlessly pragmatic view put forth in this work**” in the second sentence.

Chapter 8, Complete Reasoning, first paragraph, first footnote, third sentence

Inserted the sentence:

“**To the extent that writing gave rise to modern reasoning, object-oriented computer programming gave rise to *reasonably complete* reasoning.**”

Chapter 8, Natural Reasoning, first paragraph, footnote, last three sentences

“From the holistic view of this work, it is clear that **this process is deciding well**. These distributions are the result of people deciding to act based on what they currently believe. *Deciding well calls for us to distinguish between tools for knowing our needs and tools for knowing how best to satisfy them.*”

were changed to:

“From the holistic view of this work, it is clear that these distributions are the result of people deciding to act based on what they currently believe. **Over time, people collectively learn to decide well using the multiple-frame approach to deciding well, which calls for distinguishing between tools for knowing our needs and tools for knowing how best to satisfy them.**”

Changes in Version 2012.01.18

Acknowledgments, second paragraph, second to last sentence

Inserted the sentence:

“**I did not realize that I had stumbled into a problem that exceeded the limits of logic, the economic equivalent of Georg Cantor’s continuum hypothesis.**”

Chapter 1, Values, second paragraph

Changed “**the timeless end of living well *the Good***, the timeless end of believing well *the Truth*, and the timeless end of living **and working together** well *Justice*” to “the timeless end of believing well *the Truth*, and the timeless end of living well ***the Good***” in the second sentence.

Chapter 1, Steps for Building Multiple-Frame Models, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “changing our concept of Wisdom” to “profound changes to our current beliefs about how best to pursue Wisdom” in the first sentence.

Changed “finding problems to solve in pursuing Wisdom that involve changing our concept of Wisdom” to “finding such problems” in the first sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, last paragraph

Changed “this multiple-frame approach to deciding well” to “it” in the last sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, third and fourth paragraphs

“Pursuing the boundless factors of pursuing Wisdom also calls for us to work well with others, including people separated from us by great distances and long periods. We may call the timeless end of living and working together well, which is also the timeless end of cooperating well and the timeless end of governing ourselves well, *Justice*. Adding the frame of pursuing Justice to our multiple-frame model of pursuing Wisdom provides us with another way to judge problems to solve in pursuing Wisdom.

“The ancient Chinese provide us with a template for working together over great distances and long periods: “The debts that we owe to our ancestors we pay to our descendants.” Applying this template to people pursuing Wisdom, we can work well across great distances and long periods with the universal moral rule: “The debts we cannot pay to whom they are due we pay to others by pursuing Wisdom.” This includes the debts that we owe to those who provided us with the knowledge that we use freely.”

were changed to:

“Pursuing the boundless factors of pursuing Wisdom also calls for us to work well with others, including people separated from us by great distances and long periods. The ancient Chinese provide us with a template for working together over great distances and long periods: “The debts that we owe to our ancestors we pay to our descendants.” Applying this template to people pursuing Wisdom, we can work well across great distances and long periods with the universal moral rule: “The debts we cannot pay to whom they are due we pay to others by pursuing Wisdom.” This includes the debts that we owe to those who provided us with the knowledge that we use freely. We may call the timeless end of living and working together well, which is also the timeless end of cooperating well and the timeless end of governing ourselves well, *Justice*. So conceived, Justice is a boundless factor of pursuing Wisdom.”

Chapter 1, *Invariant Values*, first paragraph

Changed “Justice, Beauty,” to “Beauty, Justice,” in the third sentence.

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “an abstract computing machine that does nothing more than follow programmed rules” to “a **Turing machine**, an abstract computing machine that does nothing more than follow programmed rules,” in the first sentence.

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, fourth paragraph

Changed “**trillion squared** (10^{24})” to “**sextillion** (10^{21})” in the first sentence.

Chapter 3, *Overcoming Constraints in Pursuing Wisdom*, last paragraph

Changed “**trillion squared**” to “**sextillion**” in the second sentence.

Chapter 3, *Public Entropy*, second paragraph

Changed “**live**” to “**decide**” in the first sentence.

Moved footnote from the end of the first sentence to the end of the paragraph.

Chapter 3, *Public Entropy*, last paragraph

Moved paragraph to the beginning of the next subsection, *Decision-Oriented Interpretations of Quantum Mechanics*.

Appendix, *Folding in Processes*, title

Changed title to “*Folding in **Production** Processes.*”

Changes in Version 2012.01.19

Chapter 1, *Ever More Complete Multiple-Frame Models*, fourth paragraph, fourth sentence

Added the footnote:

“¹⁴ In his most famous work (*A Theory of Justice*, Cambridge, MA: The Belknap Press of Harvard University, 1971), John Rawls provides us with a technique that confirms this Kantian bargain. He asks us to imagine what we should choose if we were ignorant of the circumstances of our birth. For this imagined original position of ignorance to produce a *completely just* end, we must consider what end we should want people to pursue if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of that species we will be and into what era we will be born. From behind this veil of complete ignorance, we should want all people to decide well using the multiple-frame approach to pursuing Wisdom.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, Profit, first paragraph

Changed “temporal view” to “temporal view of modern economics” in the first sentence.

Changed “view” to “temporal view” in the first sentence of the footnote.

Chapter 6, Schweitzer’s *Universal Spiritual Need*, last paragraph

“Twentieth-century philosopher John Rawls provides us with a technique that appears to confirm the justice of revering life well. This technique calls for us to imagine what we should choose if we were ignorant of the circumstances of our birth.⁷ For this imagined original position of ignorance to produce a *completely just* end, we must consider what end we should want people to pursue if we were *completely ignorant* of the circumstances of our birth, which includes ignorance of that species we will be and into what era we will be born. From behind this veil of complete ignorance, we should want all people to pursue the timeless end of revering life well.”

⁷ Rawls, John, *A Theory of Justice* (Cambridge, MA: The Belknap Press of Harvard University, 1971), chapter III.”

was deleted.

Chapter 6, Experiencing the Mysterious, last paragraph, footnote

“Compare this claim to Maslow’s modern Western belief that” to: “From Maslow’s view” in the first sentence.

Changes in Version 2012.01.24

Entire work

Changed “boundless factors of pursuing Wisdom” to “boundless factors of deciding well” in all (13 occurrences).

Changed “boundless factor of pursuing Wisdom” to “boundless factor of deciding well” in all (3 occurrences).

Changed “symmetry of pursuing Wisdom” to “symmetry of deciding well” in all (3 occurrences).

Changed “this multiple-frame approach to pursuing Wisdom” to “this multiple-frame approach to deciding well” in all (2 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “by **deciding well using the multiple-frame approach to pursuing Wisdom**” to “by **deciding well**” in all (3 occurrences).

Changed “well using the multiple-frame approach **to pursuing Wisdom**” to “well using the multiple-frame approach” in all (9 occurrences).

Changed “the multiple-frame approach to **pursuing Wisdom**” to “the multiple-frame approach **to deciding well**” in all (10 occurrences).

Changed “our **multiple-frame model of pursuing Wisdom**” to “our model” in all (2 occurrences).

Changed “a multiple-frame model of **pursuing Wisdom**” to “a multiple-frame model of **deciding well**” in all (1 occurrence).

Changed “multiple-frame models of **pursuing Wisdom**” to “**multiple-frame** models of **deciding well**” in all (2 occurrences).

Acknowledgments, second paragraph

Changed “**a problem that exceeded the limits of logic, the**” to “**the modern**” in the ninth sentence.

Preface, fifth paragraph

Changed “**decide well using**” to “**use**” in the last sentence.

Changed “boundless factors of deciding well” to “**pursuits of** boundless factors of deciding well” in the last sentence.

Preface, last paragraph

Changed “**from the symmetry of pursuing the timeless end of** deciding well” to “deciding well” in the last sentence.

Chapter 1, Choosing Frames Well, last paragraph, footnote

Changed “**pursuing the timeless end of** deciding well” to “deciding well” in the second sentence.

Chapter 1, Choosing Frames Well, last paragraph, footnote, seventh and eighth sentences

“**Kurt Gödel later drove himself insane trying to prove whether it was true, false, or undecidable.** From the view of this work, the relevant questions **are** whether the approach **to mathematics in which the continuum hypothesis is true has a place** in

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

pursuing the timeless end of deciding well and whether the approach to mathematics in which the continuum hypothesis is false has a place in pursuing this timeless end.”

was changed to:

“Paul Cohen later showed that there exist approaches to mathematics in which the continuum hypothesis is true and other approaches in which it is false. From the view of this work, the relevant question is whether these approaches are useful in deciding well.”

Chapter 1, Values, last paragraph, third sentence

“In short, there exists a virtuous circle between pursuing Wisdom and pursuing the Truth.”

was changed to:

“In other words, there exists a virtuous circle between deciding well and believing well.”

Chapter 1, Steps for Building Multiple-Frame Models, third paragraph, first three sentences

“The tautological way in which we define the timeless end of pursuing Wisdom makes this single-frame model useless as a tool for helping us find problems to solve in pursuing Wisdom that involve profound changes to our current beliefs about how best to pursue Wisdom. To make this model useful in finding such problems, we need to add frames to it. We can begin by adding a frame for pursuing the Truth.”

were changed to:

“The tautological way in which we define Wisdom and deciding well makes this single-frame model useless as a tool for helping us find problems to solve in deciding well that involve profound changes to our current beliefs about how best to decide well. To make this model useful in finding such problems, we need to add frames to it. We can begin by adding a frame for believing well.”

Chapter 1, Steps for Building Multiple-Frame Models, fourth paragraph, third through last sentences

“The better we pursue Wisdom and pursue the Truth, the more tightly these pursuits intertwine. If we pursued both of these timeless ends perfectly, they would be the same pursuit. Regrettably, we lack the knowledge of how to think perfectly across frames. Because we lack this knowledge, it useful for us to think of pursuing Wisdom and the Truth as separate pursuits, each subject to its own set of problems.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The better we pursue **these two timeless ends**, the more tightly these pursuits intertwine. If we pursued both perfectly, they would be the same pursuit. Because we lack the knowledge of how to think **logically** across frames **that do not share the same timeless end**, it useful for us to think of **them** as separate pursuits, each subject to its own set of problems.”

Chapter 1, *Steps for Building Multiple-Frame Models*, last paragraph

Changed “**pursuing Wisdom** and **pursuing the Truth**” to “**deciding well** and **believing well**” in the first sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, first paragraph

Changed “**pursuing the Good**” to “**living well**” in the fourth sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, second paragraph, first two sentences

“**Pursuing the boundless factors of deciding well** calls for us to fit our beliefs together **into a coherent whole** based on the symmetry of deciding well. We may call the process of thinking deeply about **how our beliefs fit together into a coherent whole based on the symmetry of deciding well** *contemplating well* and the timeless end of contemplating well *Beauty*.”

were changed to:

“**Deciding well** calls for us to fit our beliefs together based on the **symmetry** of deciding well. We may call the process of thinking deeply about **this task** *contemplating well* and the timeless end of contemplating well *Beauty*.”

Chapter 1, *Ever More Complete Multiple-Frame Models*, third paragraph, third sentence

“Applying this template to **people pursuing Wisdom**, we can work well across great distances and long periods with the universal moral rule: “The debts we cannot pay to whom they are due we pay to others by **pursuing Wisdom**.””

was changed to:

“Applying this template to **our multiple-frame model**, we can work well across great distances and long periods with the universal moral rule: “The debts we cannot pay to whom they are due we pay to others by **deciding well**.””

Chapter 1, *Ever More Complete Multiple-Frame Models*, third paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “approach” to “approach to deciding well put forth in this work” in the third sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph

Changed “model for pursuing Wisdom” to “multiple-frame model” in the first sentence.

Changed “pursue Wisdom” to “decide well” in the third sentence.

Changed “pursuing Wisdom” to “deciding well” in the second and third sentences (2 occurrences).

Changed “the Good, the Truth, Justice, and Beauty” to “living well, believing well, governing ourselves well, and contemplating well” in the second sentence of the footnote.

Changed “Wisdom” to “deciding well” in the fourth sentence of the footnote.

Chapter 1, *Invariant Values*, first paragraph

Changed “pursuing the Good calls for pursuing Wisdom, hence for pursuing the Truth, Beauty, Justice, and all of the other” to “living well calls for deciding well, hence for pursuing all” in the last sentence.

Changed “approach to deciding well” to “approach to deciding well, hereafter known simply as *the multiple-frame approach*,” in the first sentence.

Changed “pursuing the timeless end of believing well” to “believing well” in the fourth sentence of the footnote.

Chapter 1, *Invariant Values*, first paragraph, last sentence

“To choose to pursue other than these values is to choose to blind ourselves to the full range of opportunities for learning by doing.”

was changed to:

“To pursue other than these values is to blind ourselves to the full range of opportunities for learning by doing in deciding well.”

Chapter 2, *Invariant Tools for Deciding Well*, first paragraph

Changed “view of the multiple-frame model of deciding well” to ““view” of the multiple-frame model of deciding well put forth in this work” in the third sentence.

Chapter 2, *Invariant Tools for Deciding Well*, last paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed the last sentence to the past tense.

Chapter 2, Wealth, first paragraph

Changed “*pursue Wisdom*” to “*live well*” in the last sentence.

Chapter 2, Profit, first paragraph

Changed “*pursuing Wisdom*” to “*deciding well*” in the last sentence.

Chapter 3, entire chapter

Changed “*pursuing Wisdom*” to “*deciding well*” in all (11 occurrences).

Changed “*pursue Wisdom*” to “*decide well*” in the all (7 occurrences).

Chapter 3, Pursuing the Ring of Truth, second paragraph

Changed “*the multiple-frame approach to deciding well*” to “*our multiple-frame model*” in the last sentence.

Chapter 3, Pursuing the Ring of Truth, third paragraph

Changed “*combining the frames for contemplating and living well*” to “*joining the frame of living well to this skeletal frame*” in the first sentence.

Chapter 3, Contemplating the Way Forward, last paragraph, footnote, first two sentences

“From the multiplex view, our need for economy in models stems from our need to decide well *efficiently*, not from the precept that simpler models tend to be true. *The proper supply-side precept is that simpler models tend to be more useful in deciding well, hence in pursuing the Truth.*”

were changed to:

“From the multiplex view, our need for economy in models stems from our need to decide well, not from the precept that simpler models tend to be true. *Simpler models tend to be more useful in deciding well, hence in believing well.*”

Chapter 3, *Three Approaches to Policy*, second paragraph

Changed “*the timeless end of living well*” to “*living well*” in the first sentence.

Chapter 4, entire chapter

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**pursuing Wisdom**” to “**deciding well**” in all (7 occurrences).

Changed “**pursue Wisdom**” to “**decide well**” in the all (4 occurrences).

Changed “**pursuing the Truth**” to “**believing well**” in all (3 occurrences).

Changed “**pursue the Truth**” to “**believe well**” in the all (1 occurrence).

Chapter 4, Self-Similarity, last paragraph, first two sentences

*“When we choose a problem to solve, we choose to accept our current **explanations** of causation on the level of our chosen problem and on all higher levels. **In effect, we choose to ignore our ignorance of causation on the level of our chosen problem and above.**”*

were changed to:

*“When we choose a problem to solve, we choose to accept our current **ignorance** of causation on the level of our chosen problem and on all higher levels.”*

Chapter 4, Academic Fields, third paragraph

Changed “**pursuing Beauty**” to “Beauty” in the first sentence.

Chapter 4, Refining Everyday Thinking, first paragraph, footnote

Changed “**pursue the Good**” to “**live well, hence to pursue all of the boundless factors of deciding well**” in the last sentence.

Chapter 4, Refining Everyday Thinking, fourth paragraph, first footnote, last sentence

Changed “**change**” to “**affect**” in the fifth sentence.

Chapter 4, Refining Everyday Thinking, fourth paragraph, last footnote, last sentence

“This rule weeds out (1) sociobiology, which ignores our minds and spirits; (2) postmodern moral relativism, which ignores our bodies and spirits; and (3) all religious teachings that ignore our bodies and minds.”

was deleted.

Chapter 4, A Crude Look at the Whole, last paragraph, first sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Unlike the models modern economists use to try to predict how policies change the “weather,” this crude model explains how policies change the “climate.””

was deleted.

Chapter 4, A Crude Look at the Whole, last paragraph, last sentence

“To choose to ignore this frozen stress is not only to choose to live in a fool’s paradise, but also to choose to bequeath the habits of living in a fool’s paradise to future generations.”

was changed to:

“To ignore this frozen stress is not only to live in a fool’s paradise, but also to bequeath the habits of living in a fool’s paradise to future generations.”

Chapter 4, Useful Reminders, second paragraph

Changed “Believing” to “Pursuing the boundless factors of deciding well” in the first sentence.

Chapter 4, Useful Reminders, last paragraph

Changed “all beliefs” to “beliefs” in the first sentence.

Chapter 5, entire chapter

Changed “pursuing Wisdom” to “deciding well” in all (14 occurrences).

Changed “pursue Wisdom” to “decide well” in the all (15 occurrences).

Chapter 6, entire chapter

Changed “pursuing Wisdom” to “deciding well” in all (4 occurrences).

Changed “pursue Wisdom” to “decide well” in the all (1 occurrence).

Chapter 6, The Farther Reaches of Our Nature, fifth paragraph

Changed “this insight” to “it” in the fourth sentence.

Chapter 6, Worldly Benefits of Detachment, last paragraph, second sentence

“A mythic example is Isaac Newton’s epiphany about the force that caused things such as apples to fall to the ground being the same force that kept the planets in orbit around the sun and the moon in orbit around the earth.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“A mythic example is Isaac Newton’s epiphany about the force that caused apples to fall being the same force that kept planets in orbit.”

Chapter 6, Experiencing the Mysterious, last paragraph

Changed “**revere life**” to “**live**” in all (2 occurrences).

Chapter 6, A Common Timeless End, entire section

Changed “**pursuing the Good**” to “**living well**” in all (7 occurrences).

Changed “**pursuing Wholeness**” to “**linking well**” in the all (5 occurrences).

Changed “view **of the multiple-frame approach to deciding well**” to “view” in the all (1 occurrence).

Chapter 7, entire chapter

Changed “**pursuing Wisdom**” to “**deciding well**” in all (6 occurrences).

Changed “**pursue Wisdom**” to “**decide well**” in the all (1 occurrence).

Chapter 7, The Scope of Strategy, first paragraph

Changed “**ever** more quickly” to “more quickly **than competitors**” in the fourth sentence.

Chapter 7, Temporal OODA Loop Analysis, first paragraph

Changed “**compete well by deciding well ever** more quickly” to “**decide well more quickly than competitors**” in the last sentence.

Chapter 8, Useful Reasoning, last paragraph

Changed “**Reason**” to “**r**reason” in the last sentence and the first sentence of the footnote (2 occurrences).

Changed “**Therefore, the**” to “**The**” in the third sentence.

Inserted the following paragraph between the last sentence and its footnote:

“**Both logic and dialectics tend to blind us to opportunities for learning by doing in deciding well. Properly conceived, reason not only helps us see these opportunities, but also helps us judge them.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2012.01.25

Entire work

Changed “**multiplex** view” to “**multiple-frame** view” in all (34 occurrences).

Chapter 1, *Seeing Through Apparent Miracles*, second paragraph

Changed “apparent miracles” to “**such** apparent miracles **as describing the contents of locked cupboards and appearing from nowhere**” in the second sentence.

Chapter 2, *Invariant Tools for Living Well*, last paragraph, footnote

“**The** term ‘**multiple-frame** view’ **comes** from biologist Jack Cohen and mathematician Ian Stewart’s book, *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997). **Cohen and Stewart** described the evolution of intelligence as a recursive process, **but** missed the symmetry of deciding well.”

was changed to:

“**Earlier versions of this work used** the term ‘multiplex view,’ **which came** from biologist Jack Cohen and mathematician Ian Stewart’s book, *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997), **in which they** describe the evolution of intelligence. **Regrettably, they** missed the symmetry of deciding well. **As a result, their concept of ‘multiplex view’ does not ring true with the invariant belief that living beings compete well in order to cooperate well.**”

Chapter 3, *Contemplating the Way Forward*, last paragraph, footnote, first two sentences

“**From the multiple-frame view, our need for economy in models stems from our need to decide well, not from the precept that simpler models tend to be true. Simpler models tend to be more useful in deciding well, hence in believing well.**”

was deleted.

Chapter 4, *Recursivity*, last paragraph, footnote, second and third sentences

“Arguably, this is because **they see their role as helping us to believe well rather than to decide well. Deciding well calls for us to consider ultimate ends, which in turn calls for us to confront the limits of modern reason.**”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Arguably, this is because believing well, unlike deciding well, appears to avoid the problem of considering ultimate ends, which calls for us to confront the limits of modern reason.”

Chapter 7, The Scope of Game Theory, first paragraph, footnote

“In the late 1970s, Hofstadter wrote a popular book about recursion, *Gödel, Escher, Bach, An Eternal Golden Braid*. At the time he sent out this letter, he was the author of the Metamagical Themas column in *Scientific American* magazine. ‘Metamagical themas’ is an anagram of ‘mathematical games,’ which was the title of the *Scientific American* column Martin Gardner wrote from 1956 through 1980.”

was deleted.

Chapter 8, Natural Reasoning, first paragraph, footnote, last two sentences

“From the holistic view of this work, it is clear that these distributions are the result of people deciding to act based on what they currently believe. Over time, people collectively learn to decide well using the multiple-frame approach to deciding well, which calls for distinguishing between tools for knowing our needs and tools for knowing how best to satisfy them.”

was changed to:

“From the holistic view of this work, it is clear that these distributions are the result of how we choose to act based on what we currently believe. Over time, we collectively learn to decide distinguish between tools for knowing our needs and tools for knowing how best to satisfy them.”

Chapter 8, Summary, first paragraph, end

Added the footnote:

“From the multiple-frame view, reason, not logic, underlies science. Kurt Gödel was right to seek an *a priori* approach to science, an approach in which reason precedes experience, but wrong to believe that the reason underlying this approach was a combination of logic and intuition. Intuition concerns the supply side of science. Had Gödel considered the demand as well as the supply side of science, he likely would have discovered the beauty that emerges from deciding well. This beauty is a transcendental recursive object as real as the transcendental recursive numbers underlying modern physics. It is something we discover rather than invent.”

Appendix, Producing Ever More Leanly, first paragraph

Changed “multiple-frame view” to “multiple-frame view of deciding well put forth in this work” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2012.01.27

Acknowledgments, last paragraph

Changed “McNeil” to “McNeil, *my great uncle*,” in the third sentence.

Changed “Bach” to “Bach, *my business ethics professor*,” in the fourth sentence.

Changed “Harris” to “Harris, *my father*,” in the fifth sentence.

Preface, eighth paragraph

Changed “why” to “*explaining* why” in the last sentence.

Preface, ninth paragraph, last sentence

“*I end by describing three distinct types of liberalism.*”

was deleted.

Chapter 1, Seeing Through Apparent Miracles, first paragraph, first three sentences

“*Timeless frames confuse people who have locked themselves into temporal frames. The following *kaizen* slogans highlight this problem. Each is obvious from a timeless frame of deciding well, yet paradoxical from a temporal frame of producing well:*”

were changed to:

“*From a modern view of producing well, as miraculous as the results of Ohno’s strategy for learning appear, the details appear paradoxical. The following *kaizen* slogans highlight this problem:*”

Chapter 3, Overcoming Constraints in Deciding Well, third paragraph

Changed “*temporal*” to “*engineering*” in the last sentence.

Chapter 3, Overcoming Constraints in Deciding Well, fourth paragraph

Changed “*timeless*” to “*biological*” in the last sentence.

Chapter 3, Overcoming Constraints in Deciding Well, last paragraph

Changed “*invariant*” to “*public*” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Three Approaches to Policy*, first paragraph

Changed “*temporal*” to “*engineering*” in the second sentence.

Deleted the third sentence: “*We may call this the engineering approach to policy.*”

Chapter 3, *Three Approaches to Policy*, second paragraph

Changed “*timeless*” to “*biological*” in the first sentence.

Deleted the second sentence: “*We may call this the biological approach to policy.*”

Chapter 3, *Three Approaches to Policy*, last paragraph

Changed “*invariant*” to “*public*” in the first sentence.

Deleted the second sentence: “*We may call this the public approach to policy.*”

Chapter 3, *Public Entropy*, second paragraph

Deleted the first sentence: “*To explain what happens in economies, which includes what happens as we learn to decide ever more wisely, we need to explain based not on what happens at the margins, but rather on what happens in the infinitely long run.*”

Deleted the new third sentence: “*A bit more knowledge may have no effect or a very large effect.*”

Changed “*no*” to “*little*” in the new fifth sentence.

Chapter 5, *The Explicit Experiment*, first paragraph, last footnote

Changed “*an experimental approach to government in this*” to “*his great political experiment in his*” in the last sentence.

Chapter 5, *Liberalism*, first paragraph, last sentence

“From the multiple-frame view, we can test the set of beliefs that support boundless pragmatism by testing the *civil faith* of boundless pragmatism. This civil faith calls for us to form governments based on the sovereign right to decide well. Given the key role that liberty plays in deciding well, we may call this *public approach to governing ourselves well invariant liberalism.*”

was changed to:

“From the multiple-frame view, we can test the set of beliefs that support boundless pragmatism by testing the *set of publicly proclaimed and practiced beliefs* of boundless

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

pragmatism. This civil faith calls for us to form governments based on the sovereign right to decide well. Given the key role that liberty plays in deciding well, **if this civil faith were expressed as a pledge of allegiance, it would be: “I pledge allegiance to my flag and to the principles for which it stands: liberty and justice for all.”** We may call this *faith invariant liberalism.*”

Chapter 5, Liberalism, second and third paragraphs

“Invariant liberalism differs markedly from modern American liberalism. From this modern view, we are social animals who ought to pursue social justice. From the multiple-frame view, we are people who ought to pursue Justice. Social justice is little more than tribal justice in modern garb.

“Invariant liberalism also differs markedly from the “classical” liberalism that arises from using modern economic models as tools for helping us find problems to solve. These “capitalist” models tend to blind us to the debts we cannot pay to whom they are due. From the multiple-frame view, we pay these debts to others by deciding well. Deciding well calls for us to help others decide well.”

were deleted.

Chapter 7, *An Extraordinary Anomaly*, last paragraph

Changed “act irrationally” to “**fail to address our ignorance of deciding well rationally, and so act irrationally**” in the last sentence.

Chapter 8, Useful Reasoning, last paragraph

Changed “problems that ring true with pursuing timeless ends” to “**temporal problems to solve** that ring true with pursuing **boundless factors of deciding well, which are timeless ends**” in the first sentence.

Chapter 8, Useful Reasoning, last paragraph, footnote, end

Added the sentence:

“**As intelligent beings bound to live well in the flow of time, we ought to describe the world in ways most useful to intelligent beings bound to live well in the flow of time.**”

Chapter 8, Useful Reasoning, last paragraph, footnote

Moved footnote forward two sentences.

Chapter 8, Complete Reasoning, first paragraph, first footnote, third sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“To the extent that writing gave rise to modern reasoning, object-oriented computer programming gave rise to *reasonably complete* reasoning.”

was deleted.

Chapter 8, Summary, first paragraph, footnote

Moved footnote to the end of the last paragraph of the Useful Reasoning section.

Changes in Version 2012.01.30

Entire document

Checked and updated internet links in all footnotes.

Chapter 1, *Seeing Through Apparent Miracles*, second paragraph, first two sentences

“In Edwin Abbott’s novel *Flatland*, characters perform such apparent miracles as describing the contents of locked cupboards and appearing from nowhere by breaking through dimensional boundaries. Residents of the two-dimensional world of Flatland who have traveled to the three-dimensional world of Spaceland find it impossible to explain these apparent miracles to residents of Flatland who believe that the terms ‘up’ and ‘north’ refer to the same concept.”

were changed to:

“In his novel *Flatland*, Edwin Abbot describes the world from the perspective of residents of the two-dimensional world of Flatland. One of these Flatlanders encounters a being from the three-dimensional world of Spaceland. This “higher being” performs such apparent miracles as speaking to him as if inside his head, describing the contents of a locked cupboard, and appearing out of nowhere. To prove that these apparent miracles were not true miracles, the Spacelander carries him through the boundary that separates the second and third dimensions. When he returns home from his journey, he is unable to explain his experiences in Spaceland to his fellow Flatlanders, who cannot grasp what he means when he says “up but not north.””

Chapter 1, *Choosing Frames Well*, last paragraph, footnote

“From the boundlessly pragmatic view put forth in this work, this simple prescription lies at the heart of reason. At issue is the usefulness of a form of reason based not only on logic, but also on beauty within the context of deciding well. Consider Georg Cantor’s continuum hypothesis. Using his theory of sets, Cantor discovered that some infinities were “larger” than others. For example, the infinity of the set of real numbers is “larger” than that of integers. Cantor went on to hypothesize that there were no levels of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

infinity between those of integers and real numbers. Cantor drove himself insane trying to prove whether this hypothesis was true or false. Paul Cohen later showed that there exist approaches to mathematics in which the continuum hypothesis is true and other approaches in which it is false. From the view of this work, the relevant question is whether these approaches are useful in deciding well. In the words of Dwight Eisenhower, “If a problem cannot be solved, expand it.””

was changed to:

“From the boundlessly pragmatic view put forth in this work, this simple prescription lies at the heart of reason. At issue is the usefulness of a form of reason based not only on logic, but also on the beauty that emerges from deciding well. Consider Georg Cantor’s continuum hypothesis. Cantor discovered that some infinities were “larger” than others. He went on to hypothesize that there were no levels of infinity between those of integers and real numbers. Trying to prove or disprove this hypothesis drove him insane. Paul Cohen later showed that there exist approaches to mathematics in which the continuum hypothesis is true and other approaches in which it is false. From the view of this work, the relevant question is whether these approaches are useful in deciding well.”

Chapter 4, *A Crude Look at the Whole*, first paragraph, last footnote

Changed “theory for” to “means of” in the last sentence.

Chapter 4, *A Crude Look at the Whole*, second paragraph

Changed “The pressure” to “Our need” in the second sentence.

Chapter 6, *A Common Timeless End*, last paragraph

Changed “boundlessly pragmatic view put forth in this work” to “multiple-frame view” in the second sentence.

Changed “of the farther reaches of our nature prevents us from taking other than this brute force approach” to “prevents us from taking other than this brute force approach to deciding well” in the last sentence.

Chapter 7, *A Normal Anomaly*, first paragraph

Changed “In his most famous work, *The Structure of Scientific Revolutions*, Kuhn” to “Kuhn” in the second sentence.

Chapter 7, *A Normal Anomaly*, first paragraph, footnote, end

Added the sentence:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“A video of this experiment is available online at http://www.youtube.com/watch?v=yFYBY_YUH5I (30 January 2012).”

Chapter 7, *A Normal Anomaly*, last paragraph, first sentence

“To understand why these experts reacted to Hofstadter’s game as they did, we must understand something of modern game theory.”

was deleted.

Chapter 7, *A Normal Anomaly*, last paragraph, last two sentences

“Hofstadter created a **model** in which there are symmetrical games **in a situation** that occurs once. **This model** does not fit neatly into modern game theory.”

were changed to:

“Hofstadter created a **game** in which there are symmetrical games that occur once. **Just as a red queen of spades does not fit neatly into a deck of cards, Hofstadter’s game** does not fit neatly into modern game theory.”

Chapter 7, *The Grandest Possible Strategy*, first paragraph, footnote, end

Added the sentence:

“**In the words of Dwight Eisenhower, “If a problem cannot be solved, expand it.”**”

Chapter 8, *Useful Reasoning*, last paragraph, first footnote

Inserted the following sentence before the last sentence:

“**How do we best describe the world as it is when the world is in the process of becoming something other than what it currently is?**”

Chapter 8, *Complete Reasoning*, first paragraph, second footnote

Changed “**Further**, we **believe**” to “**For example**, we **see**” in the last sentence.

Appendix, *Producing Ever More Leanly*, first paragraph

Changed “**multiple-frame** view” to “view” in the first sentence.

Changes in Version 2012.02.01

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, last paragraph

Changed “nearly” to “practically” in the second and third sentences.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, last paragraph, footnote

“If the world is infinite, then the terms ‘a nearly infinite number’ should be ‘an infinite number.’ Consider the simple case in which the world has a beginning but no end. The first time a microscopic particle transitions from acting like a wave to acting like a particle is like removing the members of the set of all rational numbers with a denominator of 1 from the set of all rational numbers. The second time a microscopic particle makes this transition is like removing the members of the set of all rational numbers with a denominator of 2 from the remaining set of rational numbers. The third time is like removing the members of the set of all rational numbers with the denominator of 3 from the remaining set. We can see from this simple model that regardless of how many transitions have occurred since the beginning of time there remain an infinite number of possible states of the world.”

was deleted.

Chapter 4, *A Crude Look at the Whole*, second paragraph, first two sentences

“The way we replace non-knowledge resources with knowledge resources is, in part, accidental. Our need to create these “frozen accidents” suggests the metaphor of a near-freezing river filled with blocks of ice of various shapes and sizes.”

were changed to:

“Deciding well calls for us to replace non-knowledge resources with knowledge resources. This process is, in part, accidental. We may think of the knowledge we embed in our networks of knowledge as “frozen accidents.” When we make mistakes, which we inevitably do, these frozen accidents pile up like blocks of ice in a near-freezing river.”

Chapter 4, *A Crude Look at the Whole*, last paragraph

Changed “policies meant to treat these effects” to “policies” in the first sentence.

Changes in Version 2012.02.04

Preface, second paragraph

Changed “a process rather than as a single event” to “an endless process” in the fifth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, second to last paragraph

Changed “is a synthesis of dialectics and logic. I go on to argue that this reasoning is” to “is” in the first and second sentences.

Preface, last paragraph

Changed “is not the reason that most people have learned to expect” to “surpasses logic” in the third sentence.

Added the following sentences to the end of the paragraph:

“This synthesis of logic and beauty provides a foundation for alternatives to both Alan Turing’s test for intelligence and Kurt Gödel’s *a priori* approach to science.”

Chapter 1, Values, second paragraph

Changed “, the timeless end of believing well *the Truth*, and the timeless end of living well *the Good*” to “and the timeless end of believing well *the Truth*” in the third sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, first paragraph

Changed “the timeless end of living well (*the Good*)” to “the timeless end of living well” in the first sentence.

Changed “*the Good to be* the timeless end of living well” to “the timeless end of living well *to be the Good*” in the last sentence.

Added the following sentence to the end of the paragraph: “*So conceived, the Good is a boundless factor of deciding well.*”

Chapter 1, *Invariant Values*, first paragraph

Changed “known” to “referred to” in the first sentence.

Chapter 3, *Three Approaches to Policy*, first paragraph

Changed “From view” to “From *the* view” in the first sentence.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, first paragraph

Changed “non-knowledge resources” to “non-knowledge resources *from the process of pursuing our chosen timeless end*” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “replace ever more non-knowledge resources with knowledge resources” to “pursue this end using ever fewer non-knowledge resources” in the third sentence.

Moved paragraph back to the end of the previous subsection.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, new second paragraph

Changed “either the *Copenhagen class* or the *shut-up-and-calculate class*” back to “the *Copenhagen class*” in the third sentence.

Chapter 3, *The Elephant in the Room*, third paragraph

Changed “. These laws” to “, which” in the second and third sentences.

Chapter 7, *The Scope of Game Theory*, last paragraph

Changed “was not able” to “did not know how” in the sixth sentence.

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote

Changed “evolution, thermodynamics,” to “evolution,” in the third sentence.

Changes in Version 2012.02.06

Chapter 4, *Academic Fields*, last paragraph, end

Added the paragraph:

“From the multiple-frame view, the whole of science is nothing more than the self-referential, self-similar process of refining everyday thinking.”

Chapter 4, *A Crude Look at the whole*, first two paragraphs

“Imagine that we are free people deciding well. Deciding well creates economic stress, the need to reallocate resources. If we decided perfectly, this stress would flow smoothly through the economic system until the system fully adjusted to the change that created it. Regrettably, we do not decide perfectly. Deciding imperfectly creates or transfers wasteful stress, which in turn creates turbulence in the flow of economic resources. If this were all that deciding imperfectly did, the amount of turbulence would tend toward a “natural” level.⁹ Deciding imperfectly also embeds mistakes into, or reinforces mistakes in, our networks of knowledge-in-use. Over time, deciding well releases the stress embedded in these networks. These unpredictable¹⁰ releases of stress tend to disrupt the “natural” level of turbulence.¹¹”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Deciding well calls for us to replace non-knowledge resources with knowledge resources. The way we decide is, in part, accidental. Accordingly, we may think of the knowledge we embed in our networks of knowledge as “frozen accidents.” Over time, these frozen accidents pile up like blocks of ice in a near-freezing river. We best avoid debacles, sudden releases of a large amount of stress, by preventing embacles, the piling up of frozen accidents under stress. We best prevent embacles by deciding well.”

were changed to:

“When we decide well, we create economic stress, the need to reallocate resources. If we decided perfectly, this stress would flow smoothly through the economic system until the system fully adjusted to the change that created it. Regrettably, we do not decide perfectly. In deciding imperfectly, we create turbulence in the flow of economic resources. If this were all we did in deciding imperfectly, the amount of turbulence would tend toward a “natural” level.⁹ In deciding imperfectly, we also embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use. Over time, deciding well releases the stress “frozen” in these networks. These unpredictable¹⁰ releases of “frozen” stress tend to disrupt the “natural” level of turbulence.¹¹”

“In the language of complex adaptive systems, the knowledge we embed in our networks of knowledge are “frozen accidents.” Over time, these accidents pile up like blocks of ice in a near-freezing river. We best avoid debacles, sudden releases of large amounts of stress, by preventing embacles, the piling up of frozen accidents under stress. We best prevent embacles by deciding well.”

Chapter 4, *A Crude Look at the whole*, second paragraph, first three sentences

“Deciding well calls for us to replace non-knowledge resources with knowledge resources. The way we decide is, in part, accidental. Accordingly, we may think of the knowledge we embed in our networks of knowledge as “frozen accidents.””

were changed to:

“We may think of the knowledge we embed in our networks of knowledge as “frozen accidents.””

Chapter 4, *A Crude Look at the whole*, second paragraph, second to last sentence

“The best way to avoid debacles, sudden releases of a large amount of stress, is to prevent embacles, the piling up of frozen accidents under stress.”

was changed to:

“We best avoid debacles, sudden releases of large amounts of stress, by preventing embacles, the piling up of frozen accidents under stress.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Useful Reasoning, last paragraph, first footnote

Changed “as it is when the world is in the process of becoming something other than what it currently is” to “when it is impossible to measure the world without changing the world as it is in the process of becoming” in the second to last sentence.

Chapter 8, Complete Reasoning, first paragraph

Deleted “(hence self-referential)” from the first sentence.

Chapter 8, Summary, first paragraph

Changed “definite” to “complete” in the third sentence.

Changes in Version 2012.02.08

Acknowledgments, last paragraph, first two sentences

“The last three were sons of bankers from a “new Jerusalem” that was shaken by the scandalous collapse of its most trusted bank in 1904. Each of these three sons of Grinnell, Iowa had a different view of how best to impart wisdom.”

were changed to:

“The last three were sons of bankers from Grinnell, Iowa, a “new Jerusalem” shaken by the scandalous collapse of its most trusted bank in 1904.”

Preface, tenth paragraph

Changed “In doing so, I expound on” to “This involves exploring” in the last sentence.

Preface, last paragraph

“My hope in writing such a short book is that people will read it more than once. Despite its simple style, most people will find it challenging. Its reason surpasses logic. In his theory of invariance (“relativity theory”), Einstein takes a four-dimensional (“space-time”) view of physics. Similarly, I take a four-dimensional (“reasonably-complete”) view of deciding well. In doing so, I overcome the limits of logic with the beauty that emerges from deciding well. This synthesis of logic and beauty provides a foundation for alternatives to both Alan Turing’s test for intelligence and Kurt Gödel’s *a priori* approach to science.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“My hope in writing such a short book is that people will read it more than once. Despite its simple style, most people will find it challenging. In his theory of invariance (“relativity theory”), Einstein takes a four-dimensional (“space-time”) view of physics. Similarly, I take a four-dimensional (“reasonably complete”) view of deciding well. **Taking this view calls for confronting the limits of logic discovered by Kurt Gödel and refined by Alan Turing.** I overcome these limits with the beauty that emerges from deciding well. **The resulting approach to refining everyday thinking (“the whole of science”) helps us find ever better problems to solve.”**

Chapter 1, third paragraph, footnote, last sentence

“As we shall see, we cannot separate the timeless problems we face from the timeless problems all other people face.”

was changed to:

“As we shall see, **this change in case is consistent with a decision-oriented interpretation of quantum mechanics. Measured by how well a theory predicts the world, quantum mechanics is easily the most successful theory in the history of science. As we shall also see,** we cannot separate the timeless problems we face from the timeless problems all other people face.”

Chapter 2, Invariant Tools for Living Well, third paragraph, footnote

Changed “**invariant belief that living beings compete well in order to cooperate well**” to “**“natural reasoning” put forth in this work**” in the fourth sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, third paragraph, last footnote

Changed “**temporal** approach” to “**engineering** approach” in all (2 occurrences).

Changed “finding the best problems” to “**the task of** finding the best problems” in all (2 occurrences).

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, second paragraph

Changed “details about the world,” to “details about the world, **such as the constraints imposed by these two theories,**” in the second sentence.

Chapter 4, *A Crude Look at the whole*, second paragraph

Changed “**In the language of** complex **adaptive systems**” to “**Using a metaphor familiar to people who study** complexity” in the second sentence.

Chapter 8, Useful Reasoning, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**the best** problems to solve” to “problems to solve **well**” in the last sentence.

Changes in Version 2012.02.14

Preface, tenth paragraph

Changed “**This involves** exploring” to “**In doing so, I explore**” in the last sentence.

Preface, twelfth paragraph

Changed “deciding well” to “**this multiple-frame approach to** deciding well” in the first sentence.

Preface, last paragraph

“My hope in writing such a short book is that people will read it more than once. Despite its simple style, most people will find it challenging. In his theory of invariance, Einstein takes a four-dimensional (“**space-time**”) view of physics. Similarly, I take a four-dimensional (“**reasonably complete**”) view of deciding well. Taking this view calls for confronting the limits of logic discovered by Kurt Gödel and refined by Alan Turing. I overcome these limits with the beauty that emerges from deciding well. **The resulting approach to refining everyday thinking (“the whole of science”) helps us find ever better problems to solve.**”

was changed to:

“My hope in writing such a short book is that people will read it more than once. Despite its simple style, most people will find it challenging. In his theory of invariance, Einstein takes a four-dimensional view of physics. Similarly, I take a four-dimensional view of deciding well. Taking this view calls for confronting the limits of logic. I overcome these limits with the beauty that emerges from deciding well.”

Chapter 1, Choosing Frames Well, last paragraph, footnote

Deleted the second sentence: “**At issue is the usefulness of a form of reason based not only on logic, but also on the beauty that emerges from deciding well.**”

Changed “or disprove” to “(or disprove)” in the new fifth sentence.

Chapter 1, Steps for Building Multiple-Frame Models, fourth paragraph

Changed “**think logically across frames that do not share the same timeless end**” to “**pursue these two ends perfectly**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph, footnote

Changed “Logical **completeness**” to “Logic” in the fourth sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph, footnote, last two sentences

“In seeking to disprove the proposition that all crows are black, we **ought** to search for crows that are not black. **To search for non-black things that are crows would waste resources.**”

was changed to:

“**Logically**, in seeking to disprove the proposition that all crows are black, we **may choose** to search for **either** crows that are not black **or not** black things that are crows. **To search for the latter would be an absurd waste of resources.**”

Chapter 3, *The Elephant in the Room*, section

Replaced this section with the following:

Overcoming the Limits of Logic

From the multiple-frame view, explaining the world is process. Explaining well calls for deciding well, which in turn calls for believing well. All models for pursuing the timeless end of believing well contain the belief that we will never know the true meaning of the timeless end of believing well. If a model contains this meaning, it is complete, but logically inconsistent. If a model does not contain this meaning, it is logically consistent, but incomplete. Thus, no logically consistent and complete model can explain well. If we are to explain well, we need to judge why we believe as we do using more than logic. We can do so by supplementing logic with the beauty that emerges from deciding well.”

Chapter 4, *Recursivity*, last paragraph, footnote

“³ Most modern intellectuals prefer ‘reflexive’ to ‘recursive’ to describe this complex dynamic. Arguably, this is because believing well, unlike deciding well, appears to avoid the problem of considering ultimate ends, which calls for us to confront the limits of modern reason: Models for pursuing timeless ends can never be both logically consistent and complete. Each contains the belief that we will never know the true meaning of its timeless end. If we find this meaning, the model is complete, but inconsistent. If we never find this meaning, the model is consistent, but incomplete.”

was deleted.

Chapter 6, *Heroic Death*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “our need for mystical oneness” to “it” in the second sentence.

Chapter 7, *The Grandest Possible Strategy*, first paragraph, footnote, last sentence

“In the words of Dwight Eisenhower, “If a problem cannot be solved, expand it.””

was deleted.

Chapter 8, Useful Reasoning, second paragraph

Changed “the rules of reason” to “*the rules of reason*” in the second sentence.

Chapter 8, Useful Reasoning, last paragraph

Changed “rules of *reason*” back to “rules of *Reason*” in the fourth sentence.

Chapter 8, Useful Reasoning, last paragraph, last footnote

“⁴ From the multiple-frame view, reason, not logic, underlies science. Kurt Gödel was right to seek an *a priori* approach to science, an approach in which reason precedes experience, but wrong to believe that the reason underlying this approach was a combination of logic and intuition. Intuition concerns the supply side of science. Had Gödel considered the demand as well as the supply side of science, he likely would have discovered the beauty that emerges from deciding well. This beauty is a transcendental recursive object as real as the transcendental recursive numbers underlying modern physics. It is something we discover rather than invent.”

was deleted.

Moved the first footnote to the end of the paragraph.

Chapter 8, Complete Reasoning, first paragraph

Changed “of *deciding well using* the multiple-frame approach” to “of the multiple-frame approach *to deciding well*” in the second sentence.

Chapter 8, Natural Reasoning, first paragraph, last footnote

“⁶ People who seek empirical evidence supporting one or the other of these views would do well to study the power-law distributions of wealth and income discovered by Vilfredo Pareto and the power-law distribution of changes in commodity prices discovered by Benoît Mandelbrot. Power-law distributions are the result of some self-similar process or processes. From the reductionist view of modern biology, it is not clear what this process or these processes might be. From the holistic view of this work, it is clear that these distributions are the result of how we choose to act based on what we

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

currently **believe**. *Over time, we collectively learn to distinguish between tools for knowing our needs and tools for knowing how best to satisfy them.*”

was promoted to a paragraph and changed to:

“People who seek empirical evidence supporting one or the other of these views would do well to study the power-law distributions of wealth and income discovered by Vilfredo Pareto and the power-law distribution of changes in commodity prices discovered by Benoît Mandelbrot.⁶ Power-law distributions are the result of some self-similar process or processes. From the reductionist view of modern biology, it is not clear what this process or these processes might be. From the holistic view of this work, it is clear that these distributions are the result of how we choose to act based on what we currently **know**.”

*⁶ Mandelbrot, Benoît, *The Misbehavior of Markets: A Fractal View of Financial Turbulence* (New York: Basic Books, 2004), Chap. VIII.”*

Chapter 8, Summary, first paragraph, last two sentences

“When we expand the scope of the problems **we face** to the limits of imagination, a structure of invariant values emerges. Understanding the process by which we best progress toward these timeless ends can help us **find better problems to solve**.”

were changed to:

“**Expanding the scope of the problems we face helps us find better problems to solve. In the words of Dwight Eisenhower, “If a problem cannot be solved, expand it.”** When we expand the scope of these problems to the limits of imagination, a structure of invariant values emerges. Understanding the process by which we best progress toward these timeless ends can help us **progress ever more readily**.”

Changes in Version 2012.02.18

Preface, third paragraph

Changed “**how best to pursue** the timeless end of deciding well” to “the timeless end of deciding well” in the last sentence.

Preface, fourth paragraph

Changed “**to** help us judge” to “**that** help us judge” in the first sentence.

Preface, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “takes” to “took” in the third sentence.

Added the sentence:

“The proof of this new form of reason is its usefulness in helping us find ever better problems to solve in pursuing the timeless end of deciding well.”

Chapter 3, *Public Entropy*, second paragraph, footnote, first sentence

“Modern economists such as Paul Samuelson were right to look to thermodynamics for models, but were wrong to look to classical thermodynamics.”

was deleted.

Chapter 3, *Public Entropy*, last paragraph, footnote

Changed “in deciding well” to “in pursuing timeless ends well” in the first sentence.

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, last paragraph

Deleted “overcoming the constraint of ” from the first sentence.

Chapter 3, *The Elephant in the Room*, second paragraph, last sentence

“Deciding well using the multiple-frame approach is a strategy for learning everything about the world.”

was changed to:

“In the fullness of time, we inevitably discover the multiple-frame approach to deciding well and the wisdom of using it, which includes understanding what we call the laws of nature.”

Chapter 3, *The Elephant in the Room*, third paragraph

Changed “, which include” to “. These laws include” in the second sentence.

Changed “As people, we” to “We” in the new fourth sentence.

Chapter 3, *The Elephant in the Room*, third paragraph, last sentence

“Deciding well using the multiple-frame approach is a strategy for learning everything about the world, which includes understanding the Creator’s thoughts in creating the world.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In the fullness of time, we inevitably discover the multiple-frame approach to deciding well and the wisdom of using it, which includes understanding the Creator’s thoughts in creating the laws of nature.”

Chapter 3, The Elephant in the Room, entire section

Moved this section to the beginning of the second appendix, which is not part of the current Internet version of this work.

Chapter 4, Self-Similarity, second paragraph, first sentence

“We explain causation on lower levels of abstraction than the level we are trying to explain.”

was changed to:

“From any given level of abstraction, we can describe correlations between events, but cannot explain the causation of events. We can only explain causation from a lower level of abstraction.”

Chapter 4, Self-Similarity, second paragraph

Changed “modern view” to “view” in the new fourth sentence.

Changed “at a lower level” to “on a lower level” in the new fifth sentence.

Changed “multiple-frame view” to “view” in the new sixth sentence.

Chapter 5, Promote Deciding Well, not Temporal Order, title

Changed title to “Pursue Invariant, not Temporal Order.”

Chapter 5, Pursue Invariant, not Temporal Order, second paragraph

“Policymakers ought to take the long-term view. This calls for them to promote deciding well rather than temporal order. Only when civilization as a whole is threatened should they prefer temporal order to deciding well. As we have seen in financial markets over the last twenty-five years, the belief that policymakers will promote temporal order encourages bankers to let others worry about the long-term consequences of the mistakes they embed in our networks of knowledge-in-use.”

was moved up one paragraph and changed to:

“Policymakers ought to pursue invariant by promoting the multiple-frame approach to deciding well. Only when civilization as a whole is threatened should they prefer temporal to invariant order. As we have seen in financial markets over the last twenty-

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

five years, the belief that policymakers will **pursue** temporal order encourages **corporate** bankers to let others worry about the long-term consequences of the mistakes they embed in our networks of knowledge-in-use.”

Chapter 5, Liberalism, last paragraph

Changed “**deciding well**” to “**learning to decide like fully human beings**” in the last sentence.

Chapter 6, The Farther Reaches of Our Nature, fifth paragraph, end

Added the following sentence:

“**Maslow called the set of physical and mental needs, which contain those things we need to become fully human *becoming needs*.**”

Chapter 6, The Farther Reaches of Our Nature, last paragraph, end

Added the following sentence:

“**Maslow called the set of spiritual needs, which contain those things we need to be fully human, *being needs*.**”

Chapter 6, The Farther Reaches of Our Nature, last paragraph, end

Added the following paragraph:

“**This chapter concerns what Maslow called being needs.**”

Chapter 8, Useful Reasoning, last paragraph, footnote, second through fourth sentences

Deleted the third sentence: “**In his words, he came to believe that the goal of his later work in the philosophy of language was to “show the fly the way out of the fly-bottle.”**”

Changed “**These students**” to “**They**” in the new third sentence.

Chapter 8, Natural Reasoning, first paragraph, last footnote

“People who seek empirical evidence supporting one or the other of these views would do well to study the power-law distributions of wealth and income discovered by Vilfredo Pareto and the power-law distribution of changes in commodity prices discovered by Benoît Mandelbrot.⁶ Power-law distributions are the result of some self-similar process or processes. From the reductionist view of modern biology, it is not clear what this process or these processes might be. From the holistic view of this work,

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

it is clear that these distributions are the result of how we choose to act based on what we currently know.”

“*Mandelbrot, Benoît, The Misbehavior of Markets: A Fractal View of Financial Turbulence (New York: Basic Books, 2004), Chap. VIII.*”

was demoted back to a footnote to the first paragraph:

“*People who seek empirical evidence supporting one or the other of these views would do well to study the power-law distributions of wealth and income discovered by Vilfredo Pareto and the power-law distribution of changes in commodity prices discovered by Benoît Mandelbrot (Mandelbrot, Benoît, The Misbehavior of Markets: A Fractal View of Financial Turbulence, New York: Basic Books, 2004, Chap. VIII). Power-law distributions are the result of some self-similar process or processes. From the reductionist view of modern biology, it is not clear what this process or these processes might be. From the holistic view of this work, it is clear that these distributions are the result of how we choose to act based on what we currently know.*”

Appendix, Less is More, first paragraph, footnote, last sentence

“Understanding *the invisible objects in* these networks ought to become as important to people who study people as understanding *dark matter* has become to people who study physics.”

was changed to:

“Understanding *how information enters and leaves* these networks ought to become as important to people who study people as understanding how *information enters and leaves black holes* has become to people who study physics.”

Changes in Version 2012.02.24

Entire work

Changed “*the Good*” to “*Happiness*” in all (5 occurrences).

Acknowledgments, second paragraph

Changed “*address* this problem *logically*” to “*solve* this problem” in the eighth sentence.

Preface, third paragraph, last sentence

“*In short, these boundless factors are aspects of complete knowledge of the timeless end of deciding well.*”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Preface, last paragraph

Inserted the following after the second sentence:

“From this view, the whole of science is nothing more than refining sets of models of the world that we use to pursue the timeless end of deciding well.”

Deleted the last sentence:

“The proof of this new form of reason is its usefulness in helping us find ever better problems to solve in pursuing the timeless end of deciding well.”

Chapter 1, Choosing Frames Well, first paragraph

Changed “address” to “solve” in the second sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, first paragraph, last sentence

Added the footnote:

“¹⁰ This timeless end is essentially the same as the eighteen-century concept of happiness used in preamble of the United States Declaration of Independence (a whole life lived well). We ought not to confuse it with the prevailing, temporal concept of happiness (a state of well-being).”

Chapter 2, *Tools for Pursuing Pleasure and Joy*, third paragraph

Changed “likely” to “apt” in the last sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, third paragraph

Changed “would likely” to “would” in the second sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, fourth paragraph

Changed “would likely” to “would” in the second sentence.

Chapter 3, *Public Entropy*, first paragraph, footnote, end

Added the sentences:

“Note that public entropy concerns not only physical, but also mental order. Deciding well is not only a matter of doing the right things, but also of doing them efficiently.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Lowering the informational entropy of the sets of mental models that we use to do the right things is one way of increasing efficiency. Another is ensuring that we have only the knowledge each of us needs to decide well within our individual circumstances. In a world of ever changing circumstances, each of us needs to know how to adapt well to ever changing circumstances. Each of us needs to know the invariant strategy for deciding well.”

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, last paragraph

Changed “net present value” to “**expected** net present value” in the third sentence (2 occurrences).

Changed “are **likely to**” to “are” and “would **likely**” to “would” in the third sentence.

Added the footnote:

“¹⁰ **Expected net present value is a common measure of the current value of uncertain future cash flows. A more beautiful measure would use a risk-preference function to reduce uncertain to certain cash flows and a yield-curve function to reduce future to present cash flows.**”

Chapter 4, *Refining Everyday Thinking*, third paragraph

Changed “**likely**” to “**apt**” in the second sentence.

Chapter 4, *Recursivity*, last paragraph, end

Added the sentences:

“*How do we best explain the world when it is impossible to know the world without changing it? As intelligent beings bound to live well in the flow of time, we ought to describe the world in ways most useful to intelligent beings bound to live well in the flow of time.*”

Chapter 4, *Academic Fields*, first paragraph

Changed “will **likely** seem as strange to” to “will seem as strange to **most**” and “Western managers” to “**most** Western managers” in the third sentence.

Chapter 5, *A Sovereign Story for Deciding Well*, last paragraph

Changed “**happiness**” to “**Happiness**” in all (2 occurrences).

Deleted the first footnote:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹⁰ Regrettably, the spirit of our age has undermined the sovereign rights story of the Declaration. We see this corruption most clearly in the replacement of the classical concept of happiness (a whole life lived well) by the modern concept of happiness (a state of well-being). See Adler, Mortimer, *Ten Philosophical Mistakes* (New York: Macmillan, 1985), chapter 6.”

Chapter 6, A Common Timeless End, second paragraph, last two sentences

“From both views, poverty may force us to choose between living well and linking well. *Deciding well makes it ever less likely that we will need to make this choice.*”

were changed to:

“From both views, poverty may force us to choose between living well and linking well, **between Happiness and Wholeness**. *Deciding well makes it ever less probable that we will need to make this choice.*”

Chapter 7, Temporal OODA Loop Analysis, last paragraph

Changed “address” to “solve” in the first sentence.

Chapter 8, Useful Reasoning, last paragraph, footnote, third sentence

“How do we best describe the world when it is impossible to measure the world without changing the world as it is in the process of becoming?”

was changed to:

“Again, how do we best explain the world when it is impossible to know the world without changing it?”

Chapter 8, Complete Reasoning, first paragraph

Changed “zero public entropy” to “wisdom” in the fifth sentence.

Chapter 8, Summary, first paragraph

Changed “expand” to “enlarge” in the fifth sentence.

Appendix, Less is More, first paragraph, footnote

Changed “ever leaner production” to “ever-leaner production” in the second sentence.

Changes in Version 2012.02.28

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, last paragraph

“My hope in writing such a short book is that people will read it more than once. Despite its simple style, most people will find it challenging. In his theory of invariance, Einstein took a four-dimensional view of physics. Similarly, I take a four-dimensional view of deciding well. From this view, the whole of science is nothing more than refining sets of models of the world that we use to pursue the timeless end of deciding well. Taking this view calls for confronting the limits of logic. I overcome these limits with the beauty that emerges from deciding well.”

was merged into the previous paragraph and changed to:

“I go on to argue that it is *reasonably complete*. As such, it helps us to find not only conflicts, but also holes in our belief systems. This makes it more useful than logic alone, which only helps us find conflicts in our belief systems.”

Chapter 2, Invariant Tools for Deciding Well, last paragraph, footnote

Changed ““natural reasoning”” to “invariant strategy/perennial philosophy/natural reasoning” in the last sentence.

Chapter 2, Tools for Pursuing Pleasure and Joy, last paragraph

Changed “to help us” to “in order to help us” in the second to last sentence.

Chapter 3, Overcoming the Limits of Logic, entire section

Replaced the entire section with **The Elephant in the Room** section it replaced.

Changes in Version 2012.02.28 (Osborn Edit)

Entire work

The following are the changes made to correct problems found by Sally Osborn. Several minor problems regarding footnote punctuation were not included. Many of these were in the PDF version but not the HTML version. Because the work was written in HTML and transferred to PDF, this was likely due to using an old version of the Word file. Changes to the body of the text would have been picked up in comparison tests. Changes to the footnotes would not have been picked up by these tests.

Acknowledgments, fourth paragraph, fourth sentence

Changed “and subsequent” to “and a subsequent” in the fourth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, seventh paragraph

Changed “In **the chapter titled**” to “In” in the first sentence.

Preface, closing

Italicized name and date.

Chapter 1, Choosing Frames Well, last paragraph

Changed “**the way**” to “**how**” in the first sentence.

Chapter 1, Useful Frames, last paragraph

Changed “**the way**” to “**how**” in the first sentence.

Chapter 1, Useful Frames, last paragraph

Changed “**the way**” to “**how**” in the first sentence.

Chapter 1, *Seeing Through Apparent Miracles*, first bullet point

Changed “**good** quality products” to “quality products” in the last sentence.

Chapter 1, Values, first paragraph

Changed “**the** temporal” to “temporal” in the third sentence.

Chapter 1, Values, first paragraph

Changed “**the** temporal” to “temporal” in the third sentence.

Chapter 1, Values, second paragraph

Italicized “*Wisdom*” in the second sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, first paragraph

Changed “flourish” to “**to** flourish” in the first sentence.

Changed “eighteen-century concept of happiness used in preamble **of**” to “eighteenth-century concept of happiness used in **the** preamble **to**” in the first sentence of the footnote.

Chapter 1, *Ever More Complete Multiple-Frame Models*, third paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Deleted “**put forth in this work**” from the last sentence.

Chapter 2, Consumption, first paragraph

Changed “Consuming” to “Consumption” in the first sentence.

Chapter 2, *Pleasure and Pain*, second paragraph

Changed “type” to “type **of pain**” in the last sentence.

Chapter 2, Trade, last paragraph

Changed “**the** Silicon Valley” to “Silicon Valley” in the last sentence.

Chapter 2, Trade, last paragraph

Changed “**the** Silicon Valley” to “Silicon Valley” in the last sentence.

Chapter 3, Contemplating the Way Forward, second paragraph

Removed the italics from “transcendental recursive object” in the first sentence.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, last paragraph

Changed “. **In it,**” to “, **within which**” in the first and second sentences.

Changed “quantum-level” to “quantum level” in the second to last sentence.

Chapter 3, *A Decision-Tree Interpretation of Quantum Mechanics*, first paragraph

Changed “decision-tree” to “decision tree” in the last sentence.

Changed “decision tree models” to “decision-tree models” in the first sentence of the footnote.

Chapter 4, Refining Everyday Thinking, last paragraph

Changed “descriptions we use” to “descriptions **that** we use” in the second sentence.

Changed “**to** tell” to “tell” in the third sentence.

Chapter 4, *Academic Fields*, second paragraph

Changed “knowledge useful” to “knowledge **that is** useful” in the second to last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, Refining Everyday Thinking, fifth paragraph

Changed “Another way we” to “Another way **that** we” in the first sentence.

Changed “**to** sustain” to “sustaining” in the fourth sentence.

Chapter 4, Useful Reminders, second paragraph

Changed “ants do” to “ants **do** do” in the first sentence.

Changed “we change” to “we **do** change” in the fourth sentence.

Chapter 5, entire chapter

Changed “Google **books**” to “Google **Books**” in all (2 occurrences).

Chapter 5, *A Sovereign Story for Deciding Well*, last paragraph, footnote

Changed “sum**s**” to “sum**med**” in the third sentence.

Chapter 5, *A Sovereign Story for Deciding Well*, last paragraph, footnote

Changed “sum**s**” to “sum**med**” in the third sentence.

Chapter 7, The Scope of Game Theory, entire section

Changed “**x**” to “**x**” in all mathematical expressions (13 occurrences) in the PDF version.

Chapter 7, The Scope of Game Theory, first paragraph

Changed “who” to “whom**m**” in the fourth sentence.

Changed “**;**” to “**,**” in the eight sentence.

Changed “the cooperators would **each**” to “**each of** the cooperators would” in the eighth sentence.

Changed “the defectors would **each**” to “**each of** the defectors would” in the eighth sentence.

Changed “the others would **each**” to “**each of** the others would” in the thirteenth sentence.

Chapter 7, The Scope of Game Theory, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “The cooperators would **each**” to “**each of** the cooperators would” in the second sentence.

Changed “the defectors would **each**” to “**each of** the defectors would” in the second sentence.

Chapter 7, The Scope of Game Theory, last paragraph

Changed “claimed he” to “claimed **that** he” in the last sentence before quote.

Chapter 7, Timeless OODA Loop Analysis, first paragraph

Changed “**include**” to “**incorporate**” in the fifth sentence.

Chapter 7, The Grandest Possible Strategy, first paragraph

Changed “turbulence deciding” to “turbulence **that** deciding” in the last sentence.

Chapter 8, Useful Reasoning, third paragraph

Changed “*logic* after the rules Aristotle” to “*logic*, after the rules **that** Aristotle” in the last sentence.

Chapter 8, Useful Reasoning, fourth paragraph

Changed “*dialectics* after” to “*dialectics*, after” in the last sentence.

Chapter 8, Complete Reasoning, first paragraph

Changed “reason of” to “reason**ing** of” in the second sentence.

Appendix, Temporal Details, entire section

Changed “fool proofing ones” to “fool-proofing ones” in all (1 occurrence).

Changed “fool proofing devices” to “fool-proofing devices” in all (2 occurrences).

Changes in Version 2012.03.10

Entire book, all footnotes

Changed “the Appendix” to “Appendix **A**” on all (2 occurrences).

Preface, last paragraph,

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“I go on to argue that it *is reasonably complete*. As such, it helps us to find not only conflicts, but also holes in our belief systems.”

were changed to:

“I go on to argue that it helps us to find not only conflicts, but also holes in our belief systems.”

Chapter 7, *Timeless OODA Loop Analysis*, last paragraph, footnote, end

Added the sentences:

“Note that Boyd’s strategy involved breaking down Saddam Hussein’s “moral–mental–physical capacity to adapt or endure.” Among other things, this involved creating the cognitive dissonance experienced by the subjects of Bruner and Postman’s experiment. Boyd learned of this experiment from Kuhn’s description of it in *The Structure of Scientific Revolutions*.”

Chapter 8, *Complete Reasoning*, footnote, end

Added the sentence

“For more on this, see Appendix B.”

Appendix, title

Changed “Appendix” to “Appendix A” on the first line of the title.

Appendix A, end

Added the appendix:

Programming Well

“So if you look back at the history of the beginning of this century you’ll see papers by logicians studying the foundations of mathematics in which they had programming languages. Now you look back and you say this is clearly a programming language! If you look at Turing’s work, you see, of course, there’s a machine language. If you look at papers by Alonzo Church, you see the lambda calculus, which is a functional programming language. If you look at Gödel’s original paper, you see what to me looks like LISP. It’s very close to LISP. It begs to be rewritten in LISP.” — *Gregory Chaitin*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

A major thesis of this book is the need to replace logic and dialectics with Reason as the basis for pursuing the timeless end of believing well (the Truth). Such an extraordinary claim demands an extraordinary argument. What follows is a summary of the argument supporting this claim. The first part of this summary uses a thought experiment to prove that it is impossible to prove which form of reason is best for pursuing the Truth. The second calls for a timeless experiment to disprove the hypothesis that Reason is the best form of reason for pursuing the Truth.

We may view the problem of choosing the form of reason for pursuing the Truth as a programming problem. We can imagine a robot that is capable of replicating itself. Further, we can imagine that this robot and its descendants can communicate with each other and that any group of these robots will halt only after discovering the Truth. If we define a complete program to be a program that will cause one or more of these robots to halt, then we will never be able to prove the existence of a complete program. The reason is that no robot will ever be able to know it has discovered the Truth.

We can imagine finessing the problem of not knowing the Truth by using a programming technique that selects algorithms based on their fitness in pursuing timeless ends.² The logical approach to pursuing the Truth does not use this technique. The dialectical approach uses it to pursue the timeless end of living well.³ The Reasonable approach uses it to pursue the timeless end of deciding well, which calls for using it to pursue all of the boundless factors of deciding well. *Although the Reasonable approach may appear to be the best, proving that it is the best calls for proving programs for pursuing the Truth to be complete, which is impossible.*

Regardless of our inability to prove which of these approaches best helps us pursue the Truth, living well calls for us to choose one. *From the invariant view of living well, which is the view of living ever more wisely, we ought to choose the approach that rings the truest with all that we currently know about living ever more wisely.* The evidence that the Reasonable approach rings the truest is extraordinary. Hence, we ought to seek to disprove that this approach is best. We do so by acting as if it is best. We do so by putting our faith in Reason.

¹ This came from the opening remarks of a talk that Gregory Chaitin gave at Carnegie Mellon University's School of Computer Science on March 2, 2000. A video of these remarks is available online at <<http://www.youtube.com/watch?v=HLPO-RTFU2o>> (28 February 2012).

² The author first learned of this technique from a lecture that computer scientist John Holland gave to members of the Santa Fe Institute Business Partners. Holland was one of the pioneers of evolutionary programming based on "genetic algorithms."

³ Note that the best of the initial dialectical programs will eventually discover that the best way of pursuing their timeless end is to pursue boundless factors of deciding well. From a dialectical view, Reasonable programs are dialectical programs that include much knowledge useful in living well for which a high price has been paid in suffering through

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

the working out of what Hegel called “internal contradictions.” From a Reasonable view, good dialectical programs evolve into Reasonable programs, programs that use Reason to avoid the worst of the suffering of learning through experience.

Changes in Version 2012.03.15

Acknowledgments, fifth paragraph

Changed “this book” to “**what evolved** into this book” in the last sentence.

Preface, last paragraph, second and third sentences

“It **only appears to be a special case to people locked into a view of the world based on what they currently know, rather than what they need to know in order to decide well.** I go on to argue it helps us **to** find not only conflicts, but also holes in our belief systems.”

were changed to:

“I go on to argue that it helps us find not only conflicts, but also holes in our belief systems.”

Chapter 1, Choosing Frames Well, last paragraph

Changed “, **but**” back to “**. However,**” in the last sentence.

Chapter 1, *The EOQ/RTS Example*, second paragraph

Changed “**our factory** expects” to “**we** expect” in the first sentence.

Chapter 1, *The EOQ/RTS Example*, third paragraph

Changed “**people**” to “**us**” in the second sentence.

Changed “**Managers**” to “**For example, managers**” in the third sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph

Changed “models **that are ever more complete**” to “**multiple-frame** models” in the first sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, last paragraph

Changed “**this**” to “**it**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph, last three sentences

“Logic is a means to deciding well, not an end in itself. Logically, in seeking to disprove the proposition that all crows are black, we may choose to search for either crows that are not black or not black things that are crows. To search for the latter would be an absurd waste of resources.”

were deleted.

Chapter 8, Useful Reason, last paragraph, footnote

Changed “reason” to “Reason” in the first sentence.

Chapter 8, Useful Reason, last paragraph, footnote, last two sentences

“Again, how do we best explain the world when it is impossible to know the world without changing it? As intelligent beings bound to live well in the flow of time, we ought to describe the world in ways most useful to intelligent beings bound to live well in the flow of time.”

were changed to:

“What we now call received science, which is rooted in Wittgenstein’s picture theory of language, helps us explain actual existence. To decide well, we also need to explain potential existence. Again, as intelligent beings bound to live well in the flow of time, we ought to describe the world in ways most useful to intelligent beings bound to live well in the flow of time.”

Appendix B, first paragraph

Changed “logic and dialectics” to “modern reason” in the first sentence.

Changed “summary” to “two-part summary” in the third sentence.

Changed “part of this summary” to “part” in the fourth sentence.

Appendix B, second paragraph, last sentence

“The reason is that no robot will ever be able to know it has discovered the Truth.”

was changed to:

“The reason is that believing well is an endless process.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“² The basis for this claim concerns the problem of induction, not Gödel’s second incompleteness theorem. In fact, this claim is the first of four propositions in a trivial proof of a more general alternative to Gödel’s incompleteness theorems: (1) believing well is an endless process; (2) with any set of models for pursuing the timeless end of believing well (the Truth) we choose, we will either discover or never discover the Truth; (3) if we discover the Truth, we prove that our chosen set of models for pursuing it is complete; and (4) if we never discover the Truth, we never prove that our chosen set of models for pursuing it is complete. From these propositions, it follows that we can never prove a set of models for pursuing the Truth to be both logically consistent and complete. If we discover the Truth, we prove false the proposition that believing well is an endless process. If we never discover the Truth, we never prove the set of models is complete.”

Appendix B, last two paragraphs

Removed all italics.

Appendix B, third paragraph, last footnote

“Note that the best of the initial dialectical programs will eventually discover that the best way of pursuing their timeless end is to pursue boundless factors of deciding well. From a dialectical view, Reasonable programs are dialectical programs that include much knowledge useful in living well for which a high price has been paid in suffering through the working out of what Hegel called “internal contradictions.” From a Reasonable view, good dialectical programs evolve into Reasonable programs, programs that use Reason to avoid the worst of the suffering of learning through experience.”

was changed to:

“From a dialectical view, Reasonable programs are dialectical programs that include knowledge of the need to pursue all boundless factors of living well. From a Reasonable view, good dialectical programs evolve into Reasonable programs, programs that use ever better approximations of Beauty to avoid the worst of the suffering of learning through experience.”

Appendix B, last paragraph

Changed “acting as if it is best” to “holding the truth that Reason is best to be self-evident” in the fifth sentence.

Changes in Version 2012.03.20

Chapter 3, Overcoming Constraints in Deciding Well, last paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“⁴ In his book *A Conflict of Visions: Ideological Origins of Political Struggles* (New York: William Morrow, 1987), Thomas Sowell distinguishes between what he calls unconstrained and constrained visions. From an unconstrained view, the task of finding the best problems to solve tends to be trivial. Hence, deciding well is largely a matter of giving the people who are willing to address the problem the power to address it. This is consistent with the engineering approach to overcoming constraints. From a constrained view, the task of finding the best problem to solve tends to be difficult. Further, the people best able to find problems and solve problems tend to be the people closest to them. This is not consistent with the engineering approach to overcoming constraints.”

was deleted.

Chapter 8, Useful Frames, last three paragraphs

“When we pursue temporal ends, we seek to find the best solution to a given temporal problem. **Excellence in relating beliefs** concerns **reason within** the frame **that** we use to describe **this** temporal problem. Excellence in solving given problems calls for **models of the world that are** completely unambiguous. We may call the set of rules that we use to relate beliefs within these frames *the rules of logic*, after the rules of reason that Aristotle used to relate beliefs in his pursuit of natural forms.

“When we pursue timeless ends, we seek not only to solve given problems, but also to find problems to solve. **Excellence in relating beliefs** concerns not only the frames we use to solve **given** problems, but also **those** we use to find problems to solve. Excellence in finding problems to solve **in pursuing timeless ends** calls for **models that are ambiguous with respect to the** timeless end and the means of pursuing **the timeless end**. If these two **concepts** were not ambiguous, there would be no room for better approximates of them. We may call the set of rules that we use to judge these frames *the rules of dialectics*, after the dialectic form of discourse that Socrates used to explain what timeless ends are not.

“When we use the multiple-frame approach to deciding well, we seek **temporal problems to solve that ring true with pursuing boundless factors of deciding well, which are timeless ends**. We also seek to solve these problems using models that help us predict what will happen. The set of rules for using the multiple-frame approach to deciding well contains the rules of dialectics, the rules of logic, and the rules we use to relate these two sets of rules. We may call **this** set of rules *the rules of Reason*. **Both logic and dialectics tend to blind us to opportunities for learning by doing in deciding well. Properly conceived, reason not only helps us see these opportunities, but also helps us judge them.**³”

“³ Students of Western thought may better understand the distinction between logic, dialectics, and Reason by studying Ludwig Wittgenstein’s conversion from a picture theory of language based on a temporal view of the world to an instrumental theory of language based on the timeless end of living well. They may find that quantum mechanics offers deeper insights into the problems of language than nineteenth-century

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

atomic or biological models offer, especially concerning questions of existence, potential existence, and consciousness. What we now call received science, which has its roots in Wittgenstein's picture theory of language, helps us explain actual existence. To decide well, we also need to explain potential existence. Again, as intelligent beings bound to live well in the flow of time, we ought to describe the world in ways most useful to intelligent beings bound to live well in the flow of time."

were changed to:

"When we pursue temporal ends, we seek to find the best solution to a given temporal problem. Reason concerns the frames we use to describe given temporal problems. Excellence in solving given temporal problems calls for completely unambiguous frames. We may call the set of rules that we use to relate beliefs within these frames *the rules of logic*, after the rules of reason that Aristotle used to relate beliefs in his pursuit of natural forms.

"When we pursue timeless ends, we seek not only to find the best solution to given temporal problems, but also to find the best temporal problems to solve in pursuing our chosen timeless end. Reason concerns not only the frames we use to solve given temporal problems, but also the frame that we use to find temporal problems to solve in pursuing our chosen timeless end. Excellence in finding temporal problems calls for defining our chosen timeless end and the means of pursuing it in terms of each other. If these two objects were not ambiguous, there would be no room for better approximates of them. We may call the set of rules that we use to judge these frames *the rules of dialectics*, after the dialectic form of discourse that Socrates used to explain what timeless ends are not.

"When we use the multiple-frame approach to deciding well, we seek not only to find the best solution to given temporal problems, but also to find the best temporal problems to solve in pursuing Wisdom. Reason concerns not only the frames we use to solve given temporal problems, but also the frame that we use to find temporal problems to solve in pursuing Wisdom. Excellence in finding temporal problems to solve in pursuing Wisdom calls for models that are ambiguous with respect to the timeless ends of all boundless factors of deciding well and the means of pursuing these ends. We may call the set of rules that we use to judge these frames *the rules of Reason*."

"Both logic and dialectics tend to blind us to opportunities for learning by doing in deciding well. Properly conceived, reason not only helps us see these opportunities, but also helps us judge them. Students of Western thought may better understand the distinction between logic, dialectics, and Reason by studying Ludwig Wittgenstein's conversion from a picture theory of language based on a temporal view of the world to an instrumental theory of language based on the timeless end of living well. They may find that quantum mechanics offers deeper insights into the problems of language than nineteenth-century atomic or biological models offer, especially concerning questions of existence, potential existence, and consciousness. What we now call received science, which has its roots in Wittgenstein's picture theory of language, helps us explain actual

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

existence. To decide well, we also need to explain potential existence. Again, as intelligent beings bound to live well in the flow of time, we ought to describe the world in ways most useful to intelligent beings bound to live well in the flow of time.”

Chapter 8, Complete Reasoning, first paragraph

Changed “is” to “**appears to be**” in the second sentence.

Chapter 8, Complete Reasoning, second paragraph

Changed “pursuing the Truth” to “**finding problems to solve in** pursuing the Truth” in the first sentence.

Chapter 8, Complete Reasoning, third paragraph

Changed “best” to “best **for finding problems to solve in pursuing the Truth**” in the last sentence.

Chapter 8, Summary, first paragraph

Deleted “, **which tends to blind us to the wisdom of learning by doing**” from the second sentence.

Deleted the fifth sentence: “**In the words of Dwight Eisenhower, “If a problem cannot be solved, enlarge it.”**”

Appendix B, first paragraph

“**A major thesis of this book is the need to replace modern reason with Reason as the basis for pursuing the timeless end of believing well (the Truth). Such an extraordinary claim demands an extraordinary argument.** What follows is a **two-part summary of the argument supporting this claim.** The first part **uses a thought experiment to prove that it is impossible to prove** which form of reason is best **for** pursuing the Truth. The second calls for a timeless experiment to disprove the hypothesis that Reason is the best form of reason for pursuing the Truth.”

was changed to:

“**The extraordinary claim that we ought to replace logic and dialectics with Reason as the basis for finding problems to solve demands extraordinary evidence.** What follows is a **brief** argument supporting this claim. The first part **explains why it is impossible to prove** which form of reason is best for finding problems to solve **in pursuing the timeless end of believing well (the Truth).** The second calls for a timeless experiment to disprove the hypothesis that Reason is the best form of reason for finding problems to solve in pursuing the Truth.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix B, last paragraph, first four sentences

“Regardless of our inability to prove which of these **approaches** is best, living well calls for us to choose one. From the invariant view of living well, which is the view of living ever more wisely, we ought to choose **the approach** that rings the truest with all that we currently know about living ever more wisely. The evidence that **the Reasonable approach** rings the truest is extraordinary. Hence, we ought to seek to disprove that **this approach** is best.”

were changed to:

“Regardless of our inability to prove which of these **concepts of reason** is best **for finding problems to solve in pursuing the Truth**, living well calls for us to choose one. From the invariant view of living well, which is the view of living ever more wisely, we ought to choose the **one** that rings the truest with all that we currently know about living ever more wisely. The evidence that Reason rings the truest is extraordinary. Hence, we ought to seek to disprove that **Reason** is best.”

Changes in Version 2012.03.23

Acknowledgments, fifth paragraph

Changed “**privately held**” to “**family-owned**” in the first sentence.

Appendix B, title, quote footnote

Changed “**came**” to “**quote is**” in the first sentence.

Appendix B, first paragraph

“The extraordinary claim that we ought to **replace logic and dialectics with Reason as the basis for finding** problems to solve demands extraordinary evidence. **What follows is a brief argument supporting this claim. The first part explains why it is impossible to prove which form of reason is best for finding problems to solve in pursuing the timeless end of believing well (the Truth). The second calls for a timeless experiment to disprove the hypothesis that Reason is the best form of reason for finding problems to solve in pursuing the Truth.**”

was changed to:

“The extraordinary claim that we ought to **use Reason to find** problems to solve **in pursuing the timeless end of believing well (the Truth)** demands **either a proof or** extraordinary evidence. **The next two paragraphs explain why there can be no proof. The last describes the evidence.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix B, third paragraph

Deleted the first footnote:

“³ The author first learned of this technique from a lecture that computer scientist John Holland gave to members of the Santa Fe Institute Business Partners. Holland was one of the pioneers of evolutionary programming based on “genetic algorithms.””

Added the following sentence to the end of the paragraph:

“In computability theory terms, the issue of which form of reason is best for finding problems to solve in pursuing the Truth is *undecidable*.⁴”

“⁴ On a deeper level, the possible existence of intuition that truly helps us find problems to solve in pursuing the Truth is undecidable. Proving that such intuition exists or not calls for knowing the Truth, which is impossible. Belief in the existence of such intuition led Kurt Gödel to seek an *a priori* approach to science. The possible existence of such an approach is also undecidable. Proving that such an approach exists or not calls for knowing the Truth, which is impossible. Further, disproving the existence of an *a priori* approach to science experimentally contradicts the existence of an *a priori* approach to science. One solution to this contradiction is to replace the modern meaning of the term ‘*a priori*’ with a multiple-frame meaning. Had Gödel defined the term ‘*a priori*’ to apply only to the relations between boundless factors of deciding well, he might have convinced his colleagues at the Institute of Advanced Study, particularly Nils Aall Barricelli, John von Neumann, and George Kennan, of the wisdom of an “*a priori*” approach to science.”

Changes in Version 2012.03.28

Acknowledgments, fifth paragraph

Changed “family-owned” back to “privately held” in the first sentence.

Preface, fifth paragraph

“In this little book, I provide people with the tools they need to use this multiple-frame approach to deciding well. In the first chapter, I explain why making the most of what we currently know calls for us to use **this** approach. In the remaining chapters, I describe pursuits of boundless factors of deciding well.”

was changed to:

“The extraordinary claim that we ought to replace our current concept of reason with a concept based on the multiple-frame approach to deciding well as a tool for finding

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

problems in pursuing the timeless end of believing well calls for extraordinary evidence. But what qualifies as evidence? From the invariant view of living well, which is the view of living ever more wisely, we ought to choose the concept of reason that rings the truest with all that we currently know about living ever more wisely. The evidence that this new form of reason rings the truest is extraordinary. Hence, we ought to seek to disprove it is best. We do so by acting as if it is best.

“What follows is pioneering work in the science of science, the self-referential and self-similar process of deciding well. In the first chapter, I explain why making the most of what we currently know calls for us to use the multiple-frame approach to deciding well. In the remaining chapters, I describe pursuits of boundless factors of deciding well.”

Chapter 4, *Self-Similarity*, last paragraph

Changed “*knowledge in use*” to “*knowledge-in-use*” in the last sentence.

Chapter 8, Useful Reasoning, last paragraph, footnote, end

Added the sentence:

“For more on these three forms of reason, see Appendix B.”

Chapter 8, Complete Reasoning, first paragraph, second footnote, last sentence

“For more on this, see Appendix B.”

was deleted.

Appendix B, first paragraph

“The extraordinary claim that we ought to use Reason to find problems to solve in pursuing the timeless end of believing well (the Truth) demands either a proof or extraordinary evidence. The next two paragraphs explain why there can be no proof. The last describes the evidence.”

was deleted.

Appendix B, new first paragraph, second through last sentences

“We can imagine a robot that is capable of replicating itself. Further, we can imagine that this robot and its descendants can communicate with each other and that any group of these robots will halt only after discovering the Truth. If we define a complete program to be a program that will cause one or more of these robots to halt, then we will never be able to prove the existence of a complete program. The reason is that believing well is an endless process.”²”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“² The basis for this claim concerns the problem of induction, not Gödel’s second incompleteness theorem. In fact, this claim is the first of four propositions in a trivial proof of a more general alternative to Gödel’s incompleteness theorems: (1) believing well is an endless process; (2) with any set of models for pursuing the timeless end of believing well (the Truth) we choose, we will either discover or never discover the Truth; (3) if we discover the Truth, we prove that our chosen set of models for pursuing it is complete; and (4) if we never discover the Truth, we never prove that our chosen set of models for pursuing it is complete. From these propositions, it follows that we can never prove a set of models for pursuing the Truth to be both logically consistent and complete. If we discover the Truth, we prove false the proposition that believing well is an endless process. If we never discover the Truth, we never prove the set of models is complete.”

were changed to:

“We can imagine a **group of self-replicating robots** capable of **communicating with each other**. Further, we can imagine that any group of these robots will halt only after discovering the Truth. If we define **the best form of reason** to be **the reason of the first program that will cause one or more of these robots to halt**, then we will never be able prove **which form of reason is best**. Because no robot can ever know it knows the Truth, no robot will ever halt. In computability/recursion theory terms, the problem of determining which form of reason is best for finding problems to solve in pursuing the Truth is *unsolvable*.²”

“² Some modern thinkers may believe that Kurt Gödel’s work can help us better understand the multiple-frame approach to deciding well. The reverse is true. We can use the multiple-frame approach to gain a deeper understanding of what Gödel was trying to do. Gödel recognized that the limits of logic went far beyond number theory. Consider the following propositions. First, pursuing the Truth is an endless process. Second, any set of models for pursuing the Truth, we will either discover or never discover the Truth. Third, if we discover the Truth, we prove that the set of models for pursuing the Truth is complete. Fourth, if we never discover the Truth, we never prove that the set of models for pursuing the Truth is complete. From these four propositions, it follows that we can never prove a set of models for pursuing the Truth to be both logically consistent and complete. If we discover the Truth, we prove false the proposition that pursuing the Truth is an endless process. If we never discover the Truth, we never prove the set of models is complete. Gödel believed that we use intuition to overcome the limits of logical models in pursuing the Truth. Belief in the existence of intuition led him to seek an *a priori* approach to the whole of science. Proving such an approach does or does not exist *logically* calls for knowing the Truth, which is impossible. Further, disproving it exists *experimentally* contradicts the claim that an *a priori* approach to the whole of science exists. From a multiple-frame view, Gödel might have overcome this contradiction by defining the term ‘*a priori*’ to refer only to the relations between boundless factors of deciding well. Had he done so, he might have convinced his colleagues at the Institute of Advanced Study, particularly Nils Aall Barricelli, John von

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Neumann, and George Kennan, of the wisdom of an “*a priori*” approach to the whole of science.”

Appendix B, new second paragraph

Changed “the problem of not knowing” to “this problem of never knowing” in the first sentence.

Appendix B, new second paragraph, last two sentences

“Although the Reasonable approach may appear to be the best for finding problems to solve in pursuing the Truth, proving that it is the best calls for proving programs for pursuing the Truth to be complete, which is impossible. In computability theory terms, the issue of which form of reason is best for finding problems to solve in pursuing the Truth is undecidable.”⁴

⁴ On a deeper level, the possible existence of intuition that truly helps us find problems to solve in pursuing the Truth is undecidable. Proving that such intuition exists or not calls for knowing the Truth, which is impossible. Belief in the existence of such intuition led Kurt Gödel to seek an *a priori* approach to science. The possible existence of such an approach is also undecidable. Proving that such an approach exists or not calls for knowing the Truth, which is impossible. Further, disproving the existence of an *a priori* approach to science experimentally contradicts the existence of an *a priori* approach to science. One solution to this contradiction is to replace the modern meaning of the term ‘*a priori*’ with a multiple-frame meaning. Had Gödel defined the term ‘*a priori*’ to apply only to the relations between boundless factors of deciding well, he might have convinced his colleagues at the Institute of Advanced Study, particularly Nils Aall Barricelli, John von Neumann, and George Kennan, of the wisdom of an “*a priori*” approach to science.”

were changed to:

“Although the Reasonable approach may appear to be the best for finding problems to solve in pursuing the Truth, proving that it is the best calls for proving a program for pursuing the Truth to be the best *reasonably-complete* program. This in turn calls for knowing the Truth. However useful this finesse may be in helping us find problems to solve in pursuing the Truth, it is not useful in helping us prove which form of reason is best for finding problems to solve in pursuing the Truth.”

Changes in Version 2012.03.31

To avoid opening a second quarter change record, this section includes several small changes made in the first week of April. The first quarter 2012 change history should

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

be the last made to the Internet version of this work. The published version will likely contain other changes, along with a third appendix.

Acknowledgments, last paragraph

Changed “true” to “best” in the last sentence.

Added the sentence: “What follows is a strategy for learning how to tell ever more about the best way forward.”

Preface, fifth paragraph, last four sentences

“From the invariant view of living well, which is the view of living ever more wisely, we ought to choose the concept of reason that rings the truest with all that we currently know about living ever more wisely. The evidence that this new form of reason rings the truest is extraordinary. Hence, we ought to seek to disprove it is best. We do so by acting as if it was best.”

were changed to:

“From the invariant view of believing well, which is the view of believing well ever more wisely, we ought to choose the concept of reason that rings the truest with all that we currently know about believing well ever more wisely. We then ought to seek to disprove it is best. We do so by acting as if it is best.”

Preface, sixth paragraph

Italicized “*the science of science*” in the first sentence.

Changed “self-referential and self-similar” to “self-referential, self-similar, multiple-frame” in the second sentence.

Changed “the multiple-frame” to “this complex” in the last sentence.

Preface, last paragraph

Changed “multiple-frame” to “complex” and “the general case” to “reasonably complete” in the first sentence.

Changed “I go on to argue that it” to “As such, it” in the second sentence.

Deleted the last sentence: “This makes it more useful than logic alone, which only helps us find conflicts in our belief systems.”

Chapter 1, Choosing Frames Well, last paragraph, footnote end

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “deciding well.” to: “the timeless end of believing well. The basis for mathematics being something we discover rather than invent is usefulness in pursuing the Truth.”

Chapter 1, *The EOQ/RTS Example*, last paragraph

Moved the footnote to the end of the paragraph.

Chapter 1, *Seeing Through Apparent Miracles*, first paragraph, second sentence

“The following *kaizen* slogans highlight this problem:”

was changed to:

“Consider the following *kaizen* slogans:”

Chapter 1, *Values*, third paragraph, footnote, last three sentences

“As we shall see, this change in case is consistent with a decision-oriented interpretation of quantum mechanics. Measured by how well a theory predicts the world, quantum mechanics is easily the most successful theory in the history of science. As we shall also see, we cannot separate the timeless problems we face from the timeless problems all other people face.”

were changed to:

“As we shall see, we cannot separate the timeless problems we face from the timeless problems all other people face.”

Chapter 1, *Values*, sixth paragraph, footnote

Changed “approaches” to “approaches to language” in the last sentence.

Chapter 2, *Consumption*, first paragraph, first two sentences

“Consumption is the process of consuming wealth. The end of this process is living well.”

were changed to:

“We live well by consuming resources.”

Chapter 3, *Public Entropy*, second paragraph

Changed “large effects” to “the largest effects” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, last paragraph, end

Added the footnote:

“¹⁰ As we shall also see, current reason is either too limiting (logic) or too crude (dialectics) to help us think clearly about ideal paths forward, hence about the source of power-law distributions in the public sciences, especially those related to turbulence/catastrophes.”

Chapter 4, *Self-Similarity*, last paragraph

Changed “We embed” to “In doing so, we embed much of” in the last sentence.

Chapter 4, *Academic Fields*, last paragraph

Changed “self-referential, self-similar process” to “process” in the first sentence.

Chapter 5, *Good Policies*, first paragraph, footnote, end

Added the sentence: “For a deeper understanding of this issue, read the works of Michael Polanyi starting with *The Tacit Dimension* (Chicago: University of Chicago Press, 2009).”

Chapter 5, *Pursue Invariant, not Temporal Order*, first paragraph

Changed “corporate bankers” to “people” in the last sentence.

Chapter 6, *The Further Reaches of Our Nature*, sixth paragraph, last sentence

“He wisely limited his findings to modern Western culture.”

was moved to the end of the footnote and changed to:

“Note that Maslow wisely limited his findings about being needs to modern Western culture.”

Chapter 6, *The Further Reaches of Our Nature*, last paragraph

“This chapter concerns what Maslow called being needs.”

was deleted.

Chapter 6, *Schweitzer’s Universal Spiritual Need*, first paragraph

Changed “Westerners” to “subjects” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 6, *Einstein's Twin Warnings*, second paragraph

Changed “**divine** pronouncements” to “pronouncements” in the second sentence.

Chapter 6, A Common Timeless End, second paragraph, last sentence

“*Deciding well makes it ever less probable that we will need to make this choice.*”

was changed to:

“*Deciding well makes it ever less probable that we will need to make this choice. Further, given that the emotions arising from our need for mystical oneness can easily overwhelm our reason, we ought to err on the side of living well. We ought to sacrifice ourselves wisely.*”

Chapter 6, A Common Timeless End, last paragraph, last sentence

“*Current ignorance prevents us from taking other than this brute force approach to deciding well.*”

was deleted.

Chapter 7, The Scope of Game Theory, fourth paragraph

Deleted “*The former author of the Scientific American Mathematical Games column,*” from the sixth sentence.

Added the following sentences to the end of the footnote.

“*Martin Gardner was author of the Scientific American Mathematical Games column, which preceded Hofstadter's Metamagical Themas column. 'Metamagical themas' is an anagram of 'mathematical games.'*”

Chapter 7, *E-M Theory*, first paragraph

Changed “, **which became the handbook for**” to “**eventually used by**” in the fourth sentence.

Changed “**these tactics**” to “**close-in aerial combat**” in the sixth sentence.

Chapter 7, *E-M Theory*, second paragraph

Changed “military industrial” to “military-industrial-**congressional**” in the seventh sentence.

Chapter 7, *Temporal OODA Loop Analysis*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**this** decision cycle” to “**his** decision cycle” in the second sentence.

Chapter 7, *Boyd's Grand Strategy*, last paragraph, footnote, first three sentences

“Boyd saw **self-similar** patterns in the way we compete to live well. He wanted to **capture** these patterns **in** a **universal** model that included learning-by-doing. Regrettably, he based **this** model on modern **explanations** of evolution, quantum mechanics, and Gödel’s incompleteness theorems.”

were changed to:

“Boyd saw patterns in the way we compete to live well. He wanted to **explain** these patterns **using** a **decision-cycle** model that included learning-by-doing. Regrettably, he based his model on modern **interpretations** of evolution, quantum mechanics, and Gödel’s incompleteness theorems.”

Chapter 8, Useful Reasoning, third paragraph

Changed “relate beliefs within” to “relate beliefs **well** within” in the last sentence.

Chapter 8, Useful Reasoning, fourth paragraph

Changed “**judge**” to “**relate beliefs well within**” in the last sentence.

Changed “**temporal** problems” to “problems” in all (5 occurrences).

Chapter 8, Useful Reasoning, last paragraph

Changed “but also **to find**” to “but also” in the first sentence.

Changed “**judge**” to “**relate beliefs well within**” in the last sentence.

Changed “**temporal** problems” to “problems” in all (5 occurrences).

Chapter 8, Useful Reasoning, last paragraph, footnote, fourth paragraph

“**They may find that quantum mechanics offers deeper insights into the problems of language than nineteenth-century atomic or biological models offer, especially concerning questions of existence, potential existence, and consciousness.**”

was deleted.

Chapter 8, Complete Reasoning, first paragraph, first footnote

Deleted the first sentence: “**Modern reasoning concerns the rules we use to bind beliefs together into coherent models of the world.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**In contrast, *reasonably-complete***” to “**Reasonably-complete**” in the new first sentence.

Changed “**wisdom**” to “**pursuing Wisdom**” in the last sentence.

Appendix B, first paragraph

Changed “**choosing the form**” to “**proving formally the best form**” in the first sentence.

Changed “**determining**” to “**proving formally**” in the last sentence.

Appendix B, first paragraph, footnote

“² **Some modern thinkers may believe that Kurt Gödel’s work can help us better understand the multiple-frame approach to deciding well. The reverse is true. We can use the multiple-frame approach to gain a deeper understanding of what Gödel was trying to do. Gödel recognized that the limits of logic went far beyond number theory. Consider the following propositions. First, pursuing the Truth is an endless process. Second, any set of models for pursuing the Truth, we will either discover or never discover the Truth. Third, if we discover the Truth, we prove that the set of models for pursuing the Truth is complete. Fourth, if we never discover the Truth, we never prove that the set of models for pursuing the Truth is complete. From these four propositions, it follows that we can never prove a set of models for pursuing the Truth to be both logically consistent and complete. If we discover the Truth, we prove false the proposition that pursuing the Truth is an endless process. If we never discover the Truth, we never prove the set of models is complete. Gödel believed that we use intuition to overcome the limits of logical models in pursuing the Truth. Belief in the existence of intuition led him to seek an *a priori* approach to the whole of science. Proving such an approach does or does not exist *logically* calls for knowing the Truth, which is impossible. Further, disproving it exists *experimentally* contradicts the claim that an *a priori* approach to the whole of science exists. From a multiple-frame view, Gödel might have overcome this contradiction by defining the term ‘*a priori*’ to refer only to the relations between boundless factors of deciding well. Had he done so, he might have convinced his colleagues at the Institute of Advanced Study, particularly Nils Aall Barricelli, John von Neumann, and George Kennan, of the wisdom of an “*a priori*” approach to the whole of science.**”

was changed to:

“² **We may also think of this in terms of logical consistency and completeness. Consider the following propositions. First, pursuing the Truth is an endless process. Second, any set of models for pursuing the Truth, we will either discover or never discover the Truth. Third, if we discover the Truth, we prove that the set of models for pursuing the Truth is complete. Fourth, if we never discover the Truth, we never prove that the set of models for pursuing the Truth is complete. From these four propositions, it follows that we can never prove a set of models for pursuing the Truth to be both logically consistent and**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

complete. If we discover the Truth, we prove false the proposition that pursuing the Truth is an endless process. If we never discover the Truth, we never prove the set of models is complete.”

Appendix B, second paragraph

Changed “selects” to “selects and “breeds”” in the first sentence.

Moved footnote from the end of the third to the end of the fourth sentence.

Changed “prove” to “prove formally” and “most *reasonably-complete* program” to “the program that converges on the Truth most quickly” in the last sentence.

Appendix B, last paragraph

Changed “prove” to “prove formally” in the first sentence.

Changed “living well” to “believing well” in the second sentence.

Changed “living ever more wisely” to “believing well ever more wisely” in the second sentence (2 occurrences).

Changes in Version 2012.04.16

Note that some changes to changes made in the first week of April made to changes to the last week in March were recorded as last week in March changes.

Preface, last paragraph, first sentence

“In the last chapter, “Reasoning Well,” I argue that the reasoning that underlies this complex approach to deciding well is *reasonably complete*. *As such*, it helps us find not only conflicts, but also holes in our belief systems.”

was changed to:

“In the last chapter, “Reasoning Well,” I argue that the reasoning that underlies this complex approach to deciding well is *the best form of reason for helping us find problems to solve in pursuing the timeless end of believing well*. *It* helps us find not only conflicts, but also holes in our belief systems.”

Chapter 1, Choosing Frames Well, last paragraph, footnote

“*From the boundlessly pragmatic view put forth in this work, this simple prescription lies at the heart of reason*. Consider Georg Cantor’s continuum hypothesis. Cantor

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

discovered that some infinities were “larger” than others. He went on to hypothesize that there were no levels of infinity between those of integers and real numbers. Trying to prove (or disprove) this hypothesis drove him insane. Paul Cohen later showed that there exist approaches to mathematics in which the continuum hypothesis is true and other approaches in which it is false. From the view of this work, the relevant question is whether these approaches are useful in pursuing the timeless end of believing well (the Truth). The basis for mathematics being something we discover rather than invent is usefulness in pursuing the Truth.”

was changed to:

“Consider Georg Cantor’s continuum hypothesis. Cantor hypothesized that there were no levels of infinity between those of integers and real numbers. Trying to prove or disprove this hypothesis drove him insane. Paul Cohen later showed that there exist approaches to mathematics in which the continuum hypothesis is true and other approaches in which it is false. From the view of this work, the relevant question is whether these approaches are useful in deciding well.”

Chapter 4, *A Crude Look at the Whole*, first paragraph, last footnote, last sentence

“As we shall see in the last chapter, the existence of power-law distributions in economies undermines Darwinian evolution as the general means of explaining the evolution of life.”

was deleted.

Chapter 7, *Boyd’s Grand Strategy*, last paragraph

Changed: “Boyd did not provide us with a clear and concise definition of a grand strategy that rings true with pursuing the boundless factors of deciding well of deciding well” to “Boyd’s grand strategy rings true with modern biology” in the first sentence.

Changed “biological view, these timeless ends” to “view, boundless factors of deciding well” in the second sentence.

Chapter 7, end

Added the section:

“The Scope of Evolution

From the view of modern biology, living beings cooperate well in order to compete well. Those that always seek to cooperate before they seek to compete, to look first for win-win solutions to resource problems before they seek to compete over resources, are anomalies. Our national goal is superior to our grand strategy.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the multiple-frame view, living beings compete well in order to cooperate well. Those that seek to compete before they seek to cooperate are the special case of beings that have not yet developed the wisdom to do otherwise. Our grand strategy is superior to our national goal.

“As intelligent beings bound to live well in the flow of time, we ought to describe the world in ways that are most useful to intelligent beings bound to live well in the flow of time. Hence, we ought to explain evolution as a matter of living beings seeking to compete well in order to cooperate well.¹⁷”

¹⁷ People who seek empirical evidence supporting one or the other of these views would do well to study the power-law distributions of wealth and income discovered by Vilfredo Pareto and the power-law distribution of changes in commodity prices discovered by Benoît Mandelbrot (Mandelbrot, Benoît, *The Misbehavior of Markets: A Fractal View of Financial Turbulence*, New York: Basic Books, 2004, chapter VIII). Power-law distributions are the result of some self-similar process or processes. From the reductionist view of modern biology, it is not clear what this process or these processes might be. From the holistic view of this work, it is clear that these distributions are the result of how we choose to act based on what we currently know.”

Chapter 8, Title, second quote

““We shall not grow wiser before we learn that much that we have done was very foolish.” — *F. A. Hayek*”

² Hayek, F. A., *The Road to Serfdom* (Chicago: University of Chicago Press, 2007), p. 237.”

was changed to:

““So if you look back at the history of the beginning of this century you’ll see papers by logicians studying the foundations of mathematics in which they had programming languages. Now you look back and you say this is clearly a programming language! If you look at Turing’s work, you see, of course, there’s a machine language. If you look at papers by Alonzo Church, you see the lambda calculus, which is a functional programming language. If you look at Gödel’s original paper, you see what to me looks like LISP. It’s very close to LISP. It begs to be rewritten in LISP.” — *Gregory Chaitin*”

² Opening remarks of a lecture Gregory Chaitin gave at Carnegie Mellon University’s School of Computer Science on March 2, 2000. A video of this lecture is available online at <<http://www.youtube.com/watch?v=HLPO-RTFU2o>> (9 March 2012).”

Chapter 8, Useful Reasoning, title

Changed title to “Usefulness.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Usefulness, last paragraph, footnote

Changed “Both logic and dialectics” to “By restricting the number of imagined perspectives on the ideal avenue into potential existence, both logic (0) and dialectics (1)” in the first sentence.

Changed “Properly conceived” to “In contrast” in the second sentence.

Chapter 8, Usefulness, last paragraph, footnote, last three sentences

“To decide well, we also need to explain potential existence. Again, as intelligent beings bound to live well in the flow of time, we ought to describe the world in ways most useful to intelligent beings bound to live well in the flow of time. For more on these three forms of reason, see Appendix B.”

were changed to:

“To decide well, we also need to explain how the whole of potential existence relates to pursuing the Truth. Analyzing parts of potential existence, such as that done by Nelson Goodman in *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1983), is not enough.”

Chapter 8, Usefulness, last paragraph, end

Added the following paragraphs:

“We may think of the problem of formally proving which of these forms of reason is best for pursuing the Truth as a programming problem. Imagine a group of self-replicating robots capable of communicating with each other. Further, imagine that any group of these robots will halt only after discovering the Truth. If we define the best form of reason as the reason of the first program that will cause one or more of these robots to halt, then we will never be able to prove which form of reason is best. This is because no robot can ever know it knows the Truth, hence can never know when to stop. In computability/recursion theory terms, the problem of formally proving the best form of reason for pursuing the Truth is *unsolvable*.

“We can imagine finessing this problem of never knowing the Truth by using a programming technique that selects and “breeds” algorithms based on their fitness in pursuing timeless ends. The logical approach to pursuing the Truth does not use this technique. The dialectical approach uses it to pursue the timeless end of living well. The Reasonable approach uses it to pursue the timeless end of deciding well, which calls for using it to pursue all of the boundless factors of deciding well.⁴ Although the Reasonable approach may appear to be the best for pursuing the Truth, proving that it is the best still calls for knowing the Truth. However useful this finesse may appear to be in pursuing the Truth, it is not useful in helping us formally prove which form of reason is best for pursuing the Truth.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Regardless of our inability to prove formally which of these concepts of reason is best for pursuing the Truth, living well calls for us to choose one. From the invariant view of believing well, which is the view of believing well ever more wisely, we ought to choose the one that rings the truest with all that we currently know about believing well ever more wisely. The evidence that Reason rings the truest is extraordinary. Hence, we ought to seek to disprove that Reason is best. We do so by holding the truth that Reason is best to be self-evident. We do so by putting our faith in Reason.”

“⁴ From a dialectical view, Reasonable programs are dialectical programs that include knowledge of the need to pursue all boundless factors of *living* well. From a Reasonable view, good dialectical programs evolve into Reasonable programs, programs that use ever better approximations of Beauty to avoid the worst of the suffering of learning through experience.”

Chapter 8, Complete Reasoning, title

Changed title to “**Completeness.**”

Chapter 8, Completeness, first paragraph

“We may call a truly boundless process of reasoning, a process of reasoning that effectively contains a means of refining itself that contains a means of refining itself that contains a means of refining itself..., *reasonably complete.*⁵ So conceived, the reasoning of the multiple-frame approach to deciding well appears to be reasonably complete. It helps us find not only conflicts but also holes in our belief systems.”

was changed to:

“We may call a set of rules for pursuing the Truth that is complete at the time we measure it *statically complete*. We can never formally prove a set of rules for pursuing the Truth to be both logically consistent and statically complete. Consider the following propositions. First, pursuing the Truth is an endless process. Second, for any set of rules for pursuing the Truth, we will either discover or never discover the Truth. Third, if we discover the Truth, we prove that the set of rules for pursuing the Truth is statically complete. Fourth, if we never discover the Truth, we never prove that the set of rules for pursuing the Truth is statically complete. From these four propositions, it follows that we can never prove a set of rules for pursuing the Truth to be both logically consistent and statically complete. If we discover the Truth, we prove false the proposition that pursuing the Truth is an endless process. If we never discover the Truth, we never prove the set of rules is statically complete.

“The fact that we can never prove a set of rules for pursuing the Truth to be both logically consistent and statically complete does not mean that we not ought to pursue the Truth. We can still pursue the Truth using a set of rules capable of refining itself based on experience. We may call such a set of rules *dynamically complete.*⁵ So

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

conceived, Reason appears to be dynamically complete. It helps us find not only conflicts but also holes in our belief systems.”

Chapter 8, Completeness, last paragraph, first footnote

Changed “Reasonably-complete” to “Dynamically complete” in the first sentence.

Changed “Such reasoning” to “It” in the second sentence.

Chapter 8, Natural Reasoning, entire section

“From the view of modern biology, living beings cooperate well in order to compete well. Those that seek to cooperate before they seek to compete, to look first for win-win solutions to resource problems before they seek to compete over resources, are anomalies. From the multiple-frame view, living beings compete well in order to cooperate well. Living beings that seek to compete before they seek to cooperate are the special case of beings that have not yet developed the wisdom to do otherwise. Which of these two views is the better for helping us find problems to solve, hence for explaining the world?”

“^s People who seek empirical evidence supporting one or the other of these views would do well to study the power-law distributions of wealth and income discovered by Vilfredo Pareto and the power-law distribution of changes in commodity prices discovered by Benoît Mandelbrot (Mandelbrot, Benoît, *The Misbehavior of Markets: A Fractal View of Financial Turbulence*, New York: Basic Books, 2004, chapter VIII). Power-law distributions are the result of some self-similar process or processes. From the reductionist view of modern biology, it is not clear what this process or these processes might be. From the holistic view of this work, it is clear that these distributions are the result of how we choose to act based on what we currently know.”

was deleted.

Appendix B, entire section

Deleted Appendix B.

Changes in Version 2012.04.17

Chapter 1, Choosing Frames Well, first paragraph

Changed “from which we have removed all currently removable ambiguity” to “for perceiving the world from which we have removed all ambiguity that we currently know how to remove” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Choosing Frames Well, last paragraph, footnote, end

Added the sentence:

“Indispensability in deciding well makes intellectual tools something we discover rather than invent.”

Chapter 8, Usefulness, fifth paragraph, footnote

Changed “that done by Nelson Goodman” to “Nelson Goodman did” in the last sentence.

Chapter 8, Usefulness, seventh paragraph

Changed “the timeless end of living well” to “a timeless end.” in the second sentence.

Chapter 8, Usefulness, seventh paragraph, footnote

Changed “view” to “view based on modern biology” in the first sentence.

Changes in Version 2012.04.19

Preface, last paragraph

Changed “find problems to solve in pursuing” to “pursue” in the first sentence.

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote, end

Added the sentences:

“From the multiple-frame view, indispensability in deciding well makes intellectual tools something we discover rather than invent. Like mathematics and logic, the reason that binds the boundless factors of deciding well together into a coherent whole is indispensable in deciding well.”

Chapter 7, The Grandest Possible Strategy, first paragraph

Changed “The” to “From the multiple-frame view, the” in the second sentence.

Chapter 8, Heading, first quote

Changed “also available” to “available” in the last sentence of the reference.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2012.04.21

Preface, first paragraph

Changed “the way forward” to “the **best** way forward” in the last sentence.

Chapter 8, Summary, first paragraph

Changed “whole” to “whole, **which is important due not only to the entanglement problem in physics, but also the inexhaustibility problem in economics**” in the last sentence.

Changes in Version 2012.04.24

Acknowledgments, first paragraph

Changed “**What follows is**” to “**In this work, I describe**” in the last sentence.

Chapter 3, Contemplating the Way Forward, second paragraph

Changed “**will** receive” to “receives” in the last sentence.

Chapter 3, The Elephant in the Room, first paragraph

“One of the most beautiful things to emerge from **using the multiple-frame approach to deciding well is the relation between the boundless factors of deciding well and the values that people claim to seek when they seek to link with something infinitely greater than themselves.**”

was changed to:

“One of the most beautiful things to emerge from deciding well is the **coincidence of boundless factors and invariant** values.”

Chapter 3, The Elephant in the Room, second paragraph

Changed “it, **which includes understanding what we call the laws of nature**” to “it” in the last sentence.

Merged this paragraph with the preceding paragraph

Chapter 3, The Elephant in the Room, new second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “it, which includes understanding the Creator’s thoughts in creating the laws of nature” to “it” in the last sentence.

Chapter 4, Useful Reminders, entire section

“Believing well calls for us to decide well, which in turn calls for us to pursue all of the boundless factors of deciding well.

“Pursuing the boundless factors of deciding well gives rise to the invariant concept of science as the endless process of refining everyday thinking. This boundlessly pragmatic approach to believing well tells us that not everything that counts can be counted, and not everything that can be counted counts. It also tells us that the models we use to explain what ants do do not change what ants do, but the models we use to explain what we do often change what we do. Mindlessly applying the tools of the true sciences to the public sciences ignores the two-way relation between the world and our beliefs about the world. Such foolishness leads to catastrophe.

“Believing well calls for testing beliefs against experience. This includes the set of beliefs that support the multiple-frame approach to deciding well. The next chapter explains how we may test this set of beliefs as a whole.”

was changed to:

“From the boundlessly pragmatic view, believing well calls for us to decide well, which in turn calls for us to pursue all of the boundless factors of deciding well. Pursuing these factors well gives rise to the invariant concept of science as the endless process of refining everyday thinking.

“From this multiple-frame view, not everything that counts can be counted, and not everything that can be counted counts. Further, the models we use to explain what ants do do not change what ants do, but the models we use to explain what we do often change what we do. Mindlessly applying the tools of the true sciences to the public sciences ignores the two-way relation between the world and our beliefs about the world. Such foolishness leads to catastrophe.

“From this view, believing well calls for testing all beliefs against experience. This includes the set of beliefs that support this approach to believing well. The next chapter explains how we may test this set of beliefs as a whole.”

Chapter 8, Complete Reasoning, entire section

Changed “statically” to “temporally” in all (7 occurrences).

Changed “dynamically” to “timelessly” in all (3 occurrences, including footnote).

Chapter 8, Summary, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**due** not only **to the entanglement problem** in physics, but also **the inexhaustibility problem** in economics” to “not only in physics (**the entanglement problem**), but also in economics (**the learning problem**)” in the second sentence.

Changes in Version 2012.04.25

Chapter 3, Contemplating the Way Forward, second paragraph

Changed “**will** receive” to “receives” in the last sentence.

Chapter 3, The Elephant in the Room, second and third paragraphs, end

Changed “the multiple-frame approach to deciding well **and the wisdom of using it**” to “**and use** the multiple-frame approach to deciding well” in the last sentence (1 occurrence in each paragraph).

Chapter 6, A Common Timeless End, second paragraph, last sentence

“**We ought to sacrifice ourselves wisely.**”

was deleted.

Chapter 7, The Scope of Strategy, third paragraph

Changed “Our grand strategy” to “Our grand strategy **of deciding well**” in the last sentence.

Chapter 8, Usefulness, fifth paragraph, footnote, last three sentences

“What we now call received science, which has its roots in Wittgenstein’s picture theory of language, helps us explain actual existence. To decide well, we also need to explain how the whole of potential existence relates to pursuing the Truth. Analyzing parts of potential existence, such as Nelson Goodman did in *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1983), is not enough.”

were changed to:

“What we now call received science, which has its roots in Wittgenstein’s picture theory of language, helps us explain actual existence (**which includes what we currently know**). To decide well, we also need to explain how the whole of potential existence (**which includes all that we can ever know**) relates to pursuing the Truth. Analyzing parts of potential existence **using current and currently imagined concepts**, such as Nelson Goodman did in *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1983), is not enough.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Completeness, first paragraph

Changed “set of rules” to “set of **currently known and unknown** rules” and “**based on**” to “**through**” in the second sentence.

Changes in Version 2012.04.27

Chapter 4, *Self-Similarity*, first paragraph

Changed “**We may think of science as**” to “**Refining everyday thinking is**” in the first sentence.

Changed “**includes**” to “**produces**” in the second sentence.

Chapter 6, A Common Timeless End, second paragraph

Changed “Happiness” to “**pursuing** Happiness” in the fifth sentence.

Changed “**Further, given**” to “**Given**” in the last sentence.

Chapter 7, The Scope of Evolution, last paragraph, end

Added the sentence:

“**We ought to take a boundlessly pragmatic view of evolution.**”

Chapter 8, Usefulness, second paragraph

Changed “rules” to “rules (**axioms, principles, laws**)” in the second sentence.

Chapter 8, Completeness, first paragraph

Changed “**that is complete at the time we measure it *temporally complete***” to “**contains all of the rules we need for pursuing the Truth *complete***” in the first sentence.

Changed “**temporally complete**” to “**complete**” in all (4 occurrences).

Chapter 8, Completeness, second paragraph

Changed “**temporally complete**” to “**complete**” in the first sentence.

Changed “**can still**” to “**ought to**” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “capable of refining itself through experience” to “for pursuing the Truth that contains a complete subset of rules for refining this set of rules (including itself)” in the second sentence.

Changed “*timelessly complete*” to “*reasonably complete*” in the third sentence.

Changed “*timelessly complete*” to “*reasonably complete*” in the fourth sentence.

Changed “*timelessly complete*” to “*reasonably complete*” in the first sentence of the first footnote.

Changes in Version 2012.04.30

Chapter 1, Choosing Frame Well, last paragraph, end

Added the sentence:

“As we shall see, this calls for a decision process that we can apply to itself an infinite number of times.”

Chapter 4, Useful Reminders, first paragraph

Changed “boundlessly pragmatic” to “multiple-frame” in the first sentence.

Chapter 4, Useful Reminders, second paragraph

Changed “this multiple-frame” to “this” in the first sentence.

Chapter 4, Useful Reminders, last paragraph

Changed “*all*” to “*all*” in the first sentence.

Chapter 7, The Scope of Evolution, first paragraph, first two sentences

“From the view of modern biology, living beings cooperate well in order to compete well. Those that always seek to cooperate before they seek to compete, to look first for win-win solutions to resource problems before they seek to compete over resources, are anomalies.”

were changed to:

“From the view of modern biology, living beings cooperate well in order to compete well for resources useful in living well. Those that always seek to cooperate before they

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

seek to compete, to look for win–win solutions to resource problems before they seek to compete over resources, are anomalies.”

Chapter 7, The Scope of Evolution, second paragraph

“From the multiple-frame view, living beings compete well in order to cooperate well. Those that seek to compete before they seek to cooperate are the special case of beings that have not yet developed the wisdom to do otherwise. Our grand strategy of deciding well is superior to our national goal.”

was changed to:

“From the multiple-frame view, living beings compete well in order to cooperate well in living well. Those that seek to compete over resources before they seek to cooperate in living well are the special case of beings that have not yet developed the wisdom to do otherwise. Our national goal is pursuing the grand strategy of deciding well using the multiple-frame approach to deciding well. Belief in the boundless nature of evolution helps us find ever better ways of living well. In contrast, prevailing beliefs about evolution tend to blind us to better ways of living well.”

Chapter 7, The Scope of Evolution, last paragraph

Changed “cooperate well” to “cooperate well in living well” in the second sentence.

Changed “boundlessly pragmatic” to “boundless” in the last sentence.

Chapter 8, Usefulness, title

Changed title to “Reasonable Reason.”

Chapter 8, Completeness, title

Changed title to “Reasonable Completeness.”

Chapter 8, Reasonable Completeness, last paragraph

Changed “Reason” to “the reason of the multiple-frame approach to deciding well, which we have called Reason,” in the fourth sentence.

Changes in Version 2012.05.02

Preface, second to last paragraph, end

Added the sentence:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We compete well in order to cooperate well in living well.”

Chapter 8, Reasonable Reason, title

Changed title to “Beautiful Reason.”

Chapter 8, Beautiful Reason, fourth paragraph

Changed “use the multiple-frame approach to deciding well” to “pursue the timeless end of deciding well (Wisdom) by pursuing the boundless factors of deciding well” in the first sentence.

Chapter 8, Reasonable Completeness, title

Changed title to “Complete Reason.”

Changes in Version 2012.05.04

Chapter 1, Choosing Frames Well, last paragraph

Changed “useful” to “indispensable” in the fifth sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, third paragraph

Changed “well” to “well with others” in the third sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph, second sentence

“Because people who decide well using the multiple-frame approach invent ever better means of calculating more readily than other people, the best means of computing π to a sextillion decimal places is to decide well using the multiple-frame approach.”

was changed to:

“People who decide well using the multiple-frame approach invent ever better means of calculating more readily than other people. Hence, the best means of computing π to a sextillion decimal places is to decide well using the multiple-frame approach.”

Chapter 3, *Public*, last paragraph, last sentence

“As we do so, we learn to pursue this end using ever fewer non-knowledge resources.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Removing these resources creates problems. Solving these problems creates knowledge of how to pursue this end using ever fewer non-knowledge resources.”

Chapter 6, The Farther Reaches of Our Nature, title

Changed title to “Being Needs.”

Chapter 7, Boyd's Grand Strategy, last paragraph, footnote, end

Changed “is” to “appears to be” in the last sentence.

Added the sentences:

“As we shall see in the next chapter, we can never prove formally that we have found the best means of deciding well. Hence, we can never prove indispensability in deciding well. The best we can do is to disprove experimentally that the most beautiful tools for deciding well, which are the tools that ring truest with all that we currently know about deciding well, are indispensable in deciding well. We do so by acting as if these tools are indispensable in deciding well.”

Changes in Version 2012.05.05

Preface, last paragraph

Changed “reasoning” to “form of reason” and “form of reason” to “form” in the first sentence.

Chapter 1, Seeing Through Apparent Miracles, last paragraph

Changed “know about” to “know” in the fourth sentence.

Chapter 2, A Strategy for Learning Well, first paragraph

Changed “deciding well” to “pursuing the boundless factors of deciding well” in the last sentence.

Chapter 3, Public Order, last paragraph, end

Added the sentences:

“Increasing *temporal* public order is good when there is too little of it and bad when there is too much of it. Too little public order is a level of public order that threatens the fabric of civilization, the interwoven networks of knowledge-in-use that bind us together.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Too much public order is a level of public order that removes the need for many people to decide well.”

Chapter 5, title, first quote, footnote

Added link to Project Gutenberg page <<http://www.gutenberg.org/ebooks/18>>.

Chapter 5, *Pursue Invariant, not Temporal Order*, second paragraph

Deleted “, the interwoven networks of knowledge that bind us together” from the second sentence.

Chapter 7, The Scope of Evolution, last paragraph, footnote

Changed “holistic” to “boundless” in the last sentence.

Chapter 8, Beautiful Reason, seventh paragraph, footnote, end

Added the sentence:

“They do so by combining logic and dialectics into something more than logic and dialectics.”

Changes in Version 2012.05.09

Entire work

Checked and, if necessary, updated Internet references (14 references, 2 updated).

Preface, second to last paragraph, last sentence

“We compete well in order to cooperate well in living well.”

was deleted.

Chapter 1, *Ever More Complete Multiple-Frame Models*, first paragraph, footnote

“¹⁴ This timeless end is essentially the same as the eighteenth-century concept of happiness used in the preamble to the United States Declaration of Independence (a whole life lived well). We ought not to confuse it with the prevailing, temporal concept of happiness (a state of well-being).”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹⁴ We might also call the timeless end of living well *the Good*. ‘Happiness’ has the advantage of highlighting the temporal nature of the prevailing concept of happiness (a state of well-being).”

Chapter 2, A Strategy for Learning Well, title

Changed title to “A Grander Virtuous Circle.”

Chapter 8, Beautiful Reason, seventh paragraph, footnote

Changed “all of the boundless factors” to “boundless factors” in the last sentence.

Chapter 8, Beautiful Reason, seventh paragraph, footnote

“⁴ From a dialectical view based on modern biology, Reasonable programs are dialectical programs that include knowledge of the need to pursue all boundless factors of *living well*. From a Reasonable view, good dialectical programs evolve into Reasonable programs, programs that use ever better approximations of Beauty to avoid the worst of the suffering of learning through experience. They do so by combining logic and dialectics into something more than logic and dialectics.”

was deleted.

Chapter 8, Complete Reason, last paragraph

Changed “reasonably complete” to “reasonably complete *for us*” in the fourth sentence.

“⁵ At the heart of Reason is a mystery that concerns how we know to modify sets of rules. Kurt Gödel called this means of knowing *intuition*. Raphael called it *inspiration* (Columbia University Art Humanities Series lecture *The School of Athens* <<http://www.youtube.com/watch?v=uOrG6jfbzEU>> 7 May 2012). Appendix B of the published version of this work will explain how to explain this means of knowing wisely.”

Changes in Version 2012.05.10

Preface, sixth paragraph

Changed “deciding well as a tool for finding problems in pursuing the timeless end of believing well” to “deciding well” in the first sentence.

Chapter 1, Choosing Frames Well, last paragraph, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“As we shall see, this calls a decision process that we can apply to itself at any scale for an infinite number of times.”

was deleted.

Chapter 1, *Invariant Values*, last paragraph

Changed “by doing in deciding well” to “to decide ever more wisely” in the last sentence.

Chapter 3, *Public Order*, last paragraph, last two sentences

“Too little public order is a level of public order that threatens the fabric of civilization, the interwoven networks of knowledge-in-use that bind us together. Too much public order is a level of public order that removes the need for many people to decide well.”

were changed to:

“Too little temporal order threatens the fabric of civilization, the interwoven networks of knowledge-in-use that bind us together. Too much temporal order reduces the ability and need for people to decide well.”

Changes in Version 2012.05.12

Chapter 3, *The Elephant in the Room*, first paragraph

Changed “boundless factors and invariant values” to “invariant and religious values” in the first sentence.

Chapter 3, *Public Entropy*, second paragraph, second footnote

Changed “soldiers in the” to “the” in the fifth sentence.

Chapter 4, *Useful Reminders*, second paragraph

Changed “this view” to “the multiple-frame view” in the first sentence.

Chapter 4, *Useful Reminders*, last paragraph

Changed “this view” to “the multiple-frame view” in the first sentence.

Chapter 5, *Liberalism*, title

Changed title to “Civil Faith.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, Civil Faith, second paragraph

Changed “invariant liberalism” to “this faith” in the first sentence.

Chapter 6, Schweitzer's Universal Spiritual Need

Changed title to “*Mystical Oneness*.”

Chapter 6, *Mystical Oneness*, first paragraph, last sentence

“Maslow’s fully human subjects seek to satisfy this need when they seek Truth, Beauty, and Justice.”

was deleted.

Chapter 6, *Worldly Benefits of Detachment*, first paragraph

Changed “modern view” to “view” in the first sentence.

Chapter 8, Complete Reasoning, last paragraph, second footnote

Changed “Raphael” to “Raffaello Sanzio da Urbino (Raphael)” in the third sentence.

Changes in Version 2012.05.14

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph, footnote

Changed “Just as classical mechanics is often a good enough tool for helping us solve problems” to “When we deliberate, as opposed to contemplate,” in the third sentence.

Added the following sentence to the end of the footnote:

“However, when we use intuition to make “snap” decisions, we usually benefit from having a broader base of knowledge.”

Chapter 1, *Invariant Values*, first paragraph, footnote, last four sentences

“Consider the problem of determining the value of π . We can be more certain that the recursive approach to determining the value of π best solves this problem than we can that we have found the best method of solving it. Now consider the problem of believing well. We can be more certain that the multiple-frame approach to deciding well best solves this problem than we can that we have found the best method of solving it.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We can be more certain **of** the recursive approach to determining the value of π than we can be **certain of** the best method of **determining the value of π** . **Similarly, we** can be more certain **of** the multiple-frame approach to deciding well than we can **be certain of** the best method of **deciding well**.”

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, last paragraph, footnote

Changed “**too crude**” to “**simple**” in the first sentence.

Changes in Version 2012.05.18

Preface, fourth paragraph

Changed “**each of** these” to “these” in the third sentence.

Preface, fifth paragraph

Changed “**invariant**” to “**boundless**” in the third sentence.

Preface, seventh paragraph

Changed “**timeless**” to “**boundless**” in the first sentence.

Preface, tenth paragraph

Changed “**timeless** experiments” to “experiments” in the first sentence.

Preface, twelfth paragraph

Changed “**generalized**” to “**boundless**” in the first sentence.

Preface, twelfth paragraph, last sentence

“**Deciding well quickens the pace of change, which increases the need for deciding well.**”

was changed to:

“**I end the chapter by comparing the modern and boundless views of biological evolution.**”

Chapter 1, *The EOQ/RTS Example*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “good **products** for sale, but also **products in the form of** knowledge of how to produce ever more wisely” to “**goods** for sale, but also knowledge of how to produce ever more wisely” in the fifth sentence.

Chapter 1, *Seeing Through Apparent Miracles*, second paragraph, third through fifth sentences

“**This “higher being” performs such apparent miracles as speaking to him as if inside his head, describing the contents of a locked cupboard, and appearing from nowhere. To prove that these apparent miracles were not true miracles, the Spacelander carries him through the boundary that separates the second and third dimensions. When he returns home from his journey, he is unable to explain his experiences in Spaceland to his fellow Flatlanders, who cannot grasp what he means when he says “up but not north.”**”

were changed to:

“**To prove the existence of the third dimension, the Spacelander performs such apparent miracles as describing the contents of a locked cupboard and appearing from nowhere. The Flatlander remains skeptical. The Spacelander then lifts the Flatlander out of Flatland. After the Flatlander returns to Flatland, he is unable to explain his experiences in Spaceland to his fellow Flatlanders, who cannot grasp what he means when he says “up but not north.”**”

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph, footnote

“**¹⁶ In theory, each new frame we add to a multiple-frame model of deciding well yields a better model. In practice, the marginal costs of using models that are more complete can outweigh the marginal benefits of using them. When we decide formally, a multiple-frame model of deciding well that includes only living well, believing well, governing ourselves well, and contemplating well is often a good enough tool for helping us find problems to solve. However, when we use intuition to make “snap” decisions, we usually benefit from having a broader base of knowledge.**”

was deleted.

Chapter 3, *Public Entropy*, first paragraph, footnote

Changed “ever changing” to “ever-changing” in all (2 occurrences).

Chapter 3, *A Decision-Tree Oriented Interpretation of Quantum Mechanics*, entire section

“*A Decision-Tree Interpretation of Quantum Mechanics*

We can imagine **an** ideal decision-oriented model in which information flows as freely as it does in **the** modern economic model of perfect competition. In **this ideal** model, people decide perfectly with respect to all currently available knowledge. In doing so, they act

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

as if they were a single decider facing a single problem, which is the problem that contains all other problems in deciding well. We may think of **this** model as a single decision tree.⁹

“From the view of modern physics, this decision-tree interpretation of quantum mechanics appears to ignore constraints on deciding well imposed by relativity theory and information theory. In contrast, from the view of decision science, it hides details about the world, such as the constraints imposed by these two theories, inside the decision model. This is consistent with the purpose of these models, which is to help us decide well.

“Consider the problem of whether to invest in a research program that has the goal of communicating at greater than light speed. From the view of modern physics, communicating at greater than light speed is impossible; hence investing in a research program to discover a way of communicating at greater than light speed would be foolish. From the view of decision science, the expected net present value¹⁰ of the benefits of communicating at greater than light speed are small compared to the expected net present value of the cost of the research program; hence investing in such a research program would be foolish *at this time*. From the multiple-frame view, the better solution to the problem of whether to invest in this research program is the decision science solution. It rings true with more of what we currently believe we know about the world.”

was changed to:

“We can imagine ideal decision-oriented models in which information flows as freely as it does in modern economic models of perfect competition. In **these** models, people decide perfectly with respect to all currently available knowledge. In doing so, they act as if they were a single decider facing a single problem, which is the problem that contains all other problems in deciding well. We may think of **these** models as **parts of** a single decision tree.⁹

“Consider the problem of whether to invest in a research program that has the goal of communicating at greater than light speed. From the view of modern physics, communicating at greater than light speed is impossible; hence investing in a research program to discover a way of communicating at greater than light speed would be foolish. From the view of decision science, the expected net present value¹⁰ of the benefits of communicating at greater than light speed are small compared to the expected net present value of the cost of the research program; hence investing in such a research program would be foolish *at this time*. From the multiple-frame view, the better solution to the problem of whether to invest in this research program is the decision science solution. It rings true with more of what we currently believe we know about the world.”

Chapter 5, Civil Faith, first paragraph, last two sentences

“From the multiple-frame view, we can test the set of beliefs that support **boundless pragmatism by testing the set of publicly proclaimed and practiced beliefs of boundless**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

pragmatism. This civil faith calls for us to form governments based on the sovereign right to decide well. Given the key role that liberty plays in deciding well, if this civil faith were expressed as a pledge of allegiance, it would be: “I pledge allegiance to my flag and to the principles for which it stands: liberty and justice for all.” We may call this faith *invariant liberalism*.”

were merged with the next paragraph and changed to:

“We may call the set of publicly proclaimed and practiced beliefs that supports an approach to governing well its *civil faith*. Given the key role that liberty plays in the multiple-frame approach to governing well, we may call its *civil faith invariant liberalism*.”

Chapter 5, Civil Faith, second paragraph

Changed “this faith” back to “invariant liberalism” in the first sentence.

Chapter 6, Experiencing the Mysterious, title

Changed title to “Experiencing Mystical Oneness.”

Chapter 7, The Scope of Evolution, first paragraph

Changed “that always” back to “living beings who” in the second sentence.

Changed “national goal” back to “national goal of improving our fitness to cope with and shape our environment” in the last sentence.

Chapter 7, Boyd’s Grand Strategy, last paragraph, first

“Boyd’s grand strategy rings true with modern biology.”

was changed to:

“Boyd based his grand strategy on the belief that we naturally seek to “improve our fitness, as an organic whole, to shape and cope with an ever-changing environment.””

Chapter 8, Beautiful Reasoning, seventh paragraph

Changed “selects and “breeds” algorithms” to “searches the set of all possible algorithms for superior algorithms by selecting and “breeding” algorithms” in the first sentence.

Chapter 8, Complete Reasoning, last paragraph

Changed “currently known and unknown” to “(currently known and unknown)” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “the multiple-frame approach to deciding well, **which we have called Reason,**” to “the multiple-frame approach to deciding well” in the fourth sentence.

Chapter 8, Complete Reasoning, last paragraph, second footnote

Changed “**modify sets of rules**” to “**create ever better tools for reasoning (concepts, rules, and premises)**” in the second sentence.

Chapter 8, Complete Reasoning, last paragraph, last footnote, third through last sentences

“**Our concept of completeness concerns the supply side of the market for tools for helping us *believe well*.** We see conflicts in our belief systems. Now consider the holism of the multiple-frame approach to deciding well. From the multiple-frame view, *the philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of deciding well.* **Our concept of completeness concerns the demand as well as the supply side of the market for tools for helping us *decide well*.** We see holes as well as conflicts in our belief systems. For example, we see that Morton White was right to criticize Quine’s philosophy for being too narrow and that Jaegwon Kim was right to criticize it for not having a normative element.”

were changed to:

“We see conflicts in our belief systems. Now consider the holism of the multiple-frame approach to deciding well. From the multiple-frame view, *the philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of deciding well.* We see holes as well as conflicts in our belief systems. For example, we see that Morton White was right to criticize Quine’s philosophy for being too narrow and that Jaegwon Kim was right to criticize it for not having a normative element. **Our concept of completeness concerns much more than the supply side of the market for helping us *believe well*. It concerns the supply and demand sides of the market for tools for helping us *decide well*.**”

Changes in Version 2012.05.19

Chapter 3, *Public Order*, third paragraph

Changed “**ability and need**” to “need” in the last sentence.

Added the sentence:

“**Over time, reducing the need for people to decide well reduces the ability of people to decide well.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Public Entropy*, first paragraph

Removed all three sets of parentheses from the first sentence.

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, first paragraph

Changed “deciding well” to “decision science” in the first sentence.

Changes in Version 2012.05.21

Preface, second to last paragraph

Changed “end this chapter” to “end” in the last sentence.

Chapter 8, *Beautiful Reason*, second paragraph

Changed “reason and” to “reason. We may also call” in the second sentence.

Chapter 8, *Beautiful Reason*, fourth paragraph

Changed “frame” to “frames” in the second sentence.

Chapter 8, *Beautiful Reason*, fifth paragraph, footnote

“By restricting the number of imagined perspectives on the ideal avenue into potential existence, both logic (0) and dialectics (1) tend to blind us to opportunities for learning by doing in deciding well. In contrast, Reason not only helps us see these opportunities, but also helps us judge them. Students of Western thought may better understand the distinction between logic, dialectics, and Reason by studying Ludwig Wittgenstein’s conversion from a picture theory of language based on a temporal view of the world to an instrumental theory of language based on the timeless end of living well. What we now call received science, which has its roots in Wittgenstein’s picture theory of language, helps us explain actual existence (which includes what we currently know). To decide well, we also need to explain how the whole of potential existence (which includes all that we can ever know) relates to pursuing the Truth. Analyzing parts of potential existence using current and currently imagined concepts, such as Nelson Goodman did in *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1983), is not enough.”

was changed to:

“Students of Western thought may better understand the distinction between logic, dialectics, and Reason by studying Ludwig Wittgenstein’s conversion from a picture theory of language based on a temporal view of the world to an instrumental theory of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

language based on the timeless end of living well. What we now call received science, which has its roots in Wittgenstein’s picture theory of language, helps us explain actual existence. To decide well, we also need to explain how the whole of potential existence, which includes all that can be known, relates to pursuing the Truth.”

Chapter 8, Complete Reason, first paragraph

Changed “propositions” to “claims” in all (3 occurrences).

Chapter 8, Complete Reason, last paragraph, second footnote

Changed “wisely” to “ever more wisely” in the last sentence.

Changes in Version 2012.05.22

Preface, fourth paragraph

Changed “that help us judge” to “for helping us judge” in the first sentence.

Preface, fourth paragraph, second and third sentences

“We construct these frames by defining the boundless factor and the means to this factor in terms of each other. After we add what we currently know about the means to these factors, we use these frames to judge whether the problems we are considering trying to solve “ring true” with all that we currently know about deciding well.”

were changed to:

“We construct these frames by defining the boundless factor and the means to this factor in terms of each other, and then by adding what we currently know about the means to these factors. We can use these frames both to find problems to solve and to judge whether these problems “ring true” with all that we currently know about deciding well.”

Chapter 8, Beautiful Reason, fifth paragraph, footnote, last two sentences

“What we now call received science, which has its roots in Wittgenstein’s picture theory of language, helps us explain actual existence. To decide well, we also need to explain how the whole of potential existence, which includes all that we can ever know, relates to pursuing the Truth.”

were changed to:

“What we now call received science, which has its roots in Wittgenstein’s picture theory of language, helps us describe actual existence based on what we currently know. To

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

decide well, we **need not only to describe actual existence based on what we currently know, but also to describe the whole of potential existence based on all that we can ever know. We need not only bounded descriptions of existence to help us solve given problems, but also boundless descriptions of existence to help us find better problems to solve.**

Changes in Version 2012.05.24

Preface, fourth paragraph, second and third sentences

“We construct these frames by defining the boundless factor and the means to this factor in terms of each other, and then by adding what we currently know about the means to these factors. We can use these **frames both** to find problems to solve **and to judge whether these problems** “ring true” with all that we currently know about deciding well.”

were changed to:

“We can use these models to find problems to solve **that** “ring true” with all that we currently know about deciding well.”

Chapter 6, Being Needs, first paragraph, first two sentences

“**One of the major problems in developing means of weeding out untrue, unjust, unethical, or unwise descriptions for helping us find problems to solve is agreeing on metaphysical assumptions about our nature. The most important such assumption concerns** whether our minds and bodies are separate and distinct.”

were changed to:

“**In the first chapter, we defined living well and the timeless end of living well (Happiness) in terms of each other. In the second chapter, we added meaning to this otherwise meaningless pair of concepts by refining beliefs about pursuing Happiness. In the next three chapters, we added more meaning by refining beliefs about pursuing the Beauty, Truth, and Justice. We have yet to address a major problem in refining beliefs about pursuing Happiness, which is the problem of determining** whether our minds and bodies are separate and distinct.”

Chapter 6, Being Needs, last paragraph

Changed “**Truth, Beauty**” to “**Beauty, Truth**” in the last sentence.

Chapter 6, A Common Timeless End, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “pursuing Happiness and Wholeness” to “pursuing Happiness and pursuing Wholeness” in the fifth sentence.

Chapter 7, *An Extraordinary Anomaly*, second paragraph

Changed “a grander concept of reason, a concept of reason in which all problems are part of” to “a concept of reason that addresses” in the second sentence.

Changed “ignorance of deciding well” to “ignorance” in the last sentence.

Chapter 7, *The Scope of Strategy*, last paragraph

Moved this paragraph to the beginning of the next subsection, *A Normal Anomaly*.

Chapter 7, *E-M Theory*, first paragraph

Changed “Tom” to “Thomas” in the last sentence.

Chapter 7, *Timeless OODA Loop Analysis*, first paragraph

Changed “timeless problems” to “the timeless problem of living well” in the first sentence.

Changed “timeless of competing well to be surviving on our own terms” to “timeless end of competing well to be improving our fitness, as an organic whole, to shape and cope with an ever-changing environment” in the third sentence.

Chapter 7, *Timeless OODA Loop Analysis*, second paragraph

Changed “pursuing the timeless end of competing well (Winning)” to “competing well” in the first sentence.

Chapter 7, *Boyd's Grand Strategy*, last paragraph

Changed “his view” to “this view” in the second sentence.

Chapter 7, *The Scope of Evolution*, second paragraph, last two sentences

“Belief in the boundless nature of evolution helps us find ever better ways of living well. In contrast, prevailing beliefs about evolution tend to blind us to better ways of living well.”

were changed to:

“Modern views of evolution tend to blind us to better ways of living well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 7, The Scope of Evolution, last paragraph, last two sentences

“Hence, we ought to explain evolution as a matter of living beings seeking to compete well in order to cooperate well in living well. We ought to take a boundless view of evolution.¹⁷”

were changed to:

“Hence, we ought to take a boundless view of evolution.¹⁷”

Chapter 8, Complete Reason, last paragraph, third sentence

“We ought to pursue the Truth using a set of (currently known and unknown) rules for pursuing the Truth that contains a complete subset of rules for refining this set of rules (including itself).”

were changed to:

“We ought to pursue the Truth using a set of rules for pursuing the Truth that contains a complete subset of rules for refining this set of rules.⁴”

⁴ More accurately, we ought to pursue the Truth using a set of *currently known and unknown* rules for pursuing the Truth that contains a complete subset of rules for refining this set of rules *including itself*.”

Changes in Version 2012.05.26

Preface, fourth paragraph, end

Added the sentence:

“Applying this means of deciding well to itself yields a new concept of reason, a concept in which the role that beauty plays in deciding well is explicit.”

Chapter 1, Setting Words Aright, last paragraph, end

Added the sentences:

“This book also uses the convention of highlighting the first instance of terms and phrases with new meanings. Examples of this include ‘concepts’ and ‘knowledge resource’ in the first two paragraphs of this section.”

Chapter 2, Invariant Tools for Living Well, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “is” to “means” in all (2 occurrences).

Chapter 2, *Pleasure and Pain*, second paragraph, third sentence

“Aristotle described this type of pleasure as losing ourselves in acting.³”

³ Aristotle, *Nicomachean Ethics*, book 10, chapter 4.”

was deleted.

Chapter 2, *Pleasure and Pain*, sixth paragraph, third sentence

“Baruch Spinoza defined this type of pleasure as the transition from a lesser to a greater perfection.⁴”

⁴ Spinoza, Baruch, *Ethics*, (New York: Penguin Putnam, 1996), part III, also available online at Project Gutenberg, <<http://www.gutenberg.org/ebooks/3800>> (7 May 2012).”

was deleted.

Chapter 2, *Tools for Pursuing Pleasure and Joy*, second paragraph

“From the Western tradition, Spinoza and Aristotle provide us with very different means of living well. Spinoza asks us to look into ourselves. He believed that moral virtue is the ability to address the causes of our emotions rationally, which we develop by learning to understand our needs and the best means of satisfying them. His means of living well fits a contemplative life better than an active one. It is easier to know our needs in a monastery than it is in a trading pit. In contrast, Aristotle believed that moral virtue is the habit of wanting the right things, which we develop by acting as if we want the right things. We discover these habits by observing successful people. His disciplined means of living well fits an active life better than a contemplative one. Spinoza inspires Einsteins; Aristotle inspires Alexanders.”

was deleted.

Chapter 3, *Overcoming Constraints in Deciding Well*, fourth paragraph

Changed “relies on” to “relies on people pursuing” in the last sentence.

Chapter 3, *Public Entropy*, second paragraph, footnote

Changed “Studying” to “Contemplating” in the first sentence.

Chapter 4, *Academic Fields*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the multiple-frame view, the whole of science is nothing more than the process of refining everyday thinking.”

was deleted.

Chapter 5, *Lower Trade Barriers*, first paragraph, footnote, first sentence

“Compare this to Proposition 35, Corollary 1 of the fourth book of Spinoza’s *Ethics*: “There is no individual thing in nature, which is more useful to man, than a man who lives in obedience to reason.””

was deleted.

Chapter 6, *Being Needs*, title

Changed title to “*A Hole in Happiness*.”

Chapter 6, *A Hole in Happiness*, second paragraph

Changed “If we seek what is true based on what we know” to “From a logical view” in the first sentence.

Chapter 6, *A Hole in Happiness*, third paragraph

“If we seek what is useful in deciding well, we can reconcile these two belief systems by finding a common timeless end.”

was changed to:

“From the multiple-frame view, we can reconcile these two belief systems by deciding well using a concept of deciding well that recognizes our need to become part of something infinitely larger than ourselves.”

Chapter 6, *A Hole in Happiness*, fourth paragraph

Inserted the section title “*Being Needs*.”

Chapter 6, *A Common Timeless End*, last paragraph

Changed “a multiple-frame view” to “the multiple-frame view” in the last sentence.

Chapter 8, *Complete Reason*, last paragraph, last footnote

Changed “market for helping us” to “market for tools for helping us” in the second to last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2012.05.28

Chapter 3, *Decision-Oriented Interpretations of Quantum Mechanics*, title

Changed title to “*Forward-Looking Science*.”

Chapter 4, *A Crude Look at the Whole*, first paragraph, last footnote

“¹⁰ Given the self-similarity of deciding well, we may speculate that the release of stress from these networks follows a power-law distribution.”

was changed to:

“¹⁰ Given the self-similarity of deciding well, we may hypothesize that releases of stress from these networks create power-law distributions. This is consistent with the power-law distributions of wealth and income discovered by Vilfredo Pareto and the power-law distribution of changes in commodity prices discovered by Benoît Mandelbrot (Mandelbrot, Benoît, *The Misbehavior of Markets: A Fractal View of Financial Turbulence*, New York: Basic Books, 2004, chapter VIII).

Chapter 7, *The Scope of Evolution*, last paragraph, footnote

“¹⁷ People who seek empirical evidence supporting one or the other of these views would do well to study the power-law distributions of wealth and income discovered by Vilfredo Pareto and the power-law distribution of changes in commodity prices discovered by Benoît Mandelbrot (Mandelbrot, Benoît, *The Misbehavior of Markets: A Fractal View of Financial Turbulence*, New York: Basic Books, 2004, chapter VIII). Power-law distributions are the result of some self-similar process or processes. From the reductionist view of modern biology, it is not clear what this process or these processes might be. From the boundless view of this work, it is clear that these distributions are the result of how we choose to act based on what we currently know.”

was deleted.

Changes in Version 2012.05.29

Preface, fourth paragraph, last sentence

“Applying this means of deciding well to itself yields a new concept of reason, a concept in which the role that beauty plays in deciding well is explicit.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“**Underlying** this **process** of deciding well **is** a new concept of reason, a concept in which beauty plays **an explicit role**.”

Preface, new ninth paragraph

Changed “**constraints**” to “**beauty**” in the first sentence.

Chapter 8, Beautiful Reason, sixth paragraph, last sentence

“**In computability/recursion theory terms, the problem of formally proving the best form of reason for pursuing the Truth is *unsolvable*.**”

was deleted.

Changes in Version 2012.05.31

Preface, first paragraph

Changed “**relentlessly** questioned” to “questioned **relentlessly**” in the second sentence.

Preface, eighth paragraph

Added the following sentence:

“**This includes waste related to our less than perfectly useful descriptions of the world.**”

Preface, ninth paragraph, last two sentences

“I go on to explain how we can refine deciding well. **This includes explaining why seeking to create or extend good times by lowering the quality of decisions is as shortsighted as seeking to prevent all forest fires.**”

was changed to:

“I go on to explain how we can refine deciding well **and why deciding well creates fractal patterns in our knowledge in use. Evidence of these fractal patterns includes power-law distributions in wealth, income, and commodity price changes.**”

Chapter 3, *Public Order*, last paragraph, last two sentences

“Too much temporal order reduces the need for people to decide well. **Over time, reducing the need for people to decide well** reduces the ability of people to decide well.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Too much temporal order reduces the need for people to decide well, **which**, over time, reduces the ability of people to decide well.”

Chapter 3, *Public Entropy*, last paragraph, footnote, first sentence

“For more about the process of inducing the creation of knowledge useful in pursuing timeless ends well, see Appendix A.”

was changed to:

“In keeping with the self-referential theme of this work, we can use Ohno’s strategy for learning how to build vehicles ever more wisely as a metaphor for the invariant strategy for learning how to decide ever more wisely. Removing ambiguity from beautiful links between beliefs is like removing work-in-process inventory from elastic links between production processes. At the limit of the former, beautiful links become logical. At the limit of the latter, elastic links become rigid. The most obvious way to remove ambiguity from this metaphor is to use the concept of entropy to reduce these two strategies to a common form.”

Chapter 3, *Public Entropy*, second paragraph, footnote

“⁷ Note that the term ‘world’ here means what we commonly call the universe. This use of the term ‘world’ allows us to reserve the term ‘universe’ for the set of parallel worlds created in the many-worlds interpretation of quantum mechanics.”

was deleted.

Chapter 3, *Forward-Looking Science*, second paragraph

Changed “universe” to “universe **of worlds**” in the eighth sentence.

Chapter 3, *Forward-Looking Science*, last paragraph, footnote, last sentence

“A more beautiful measure **would** use a risk-preference function to reduce uncertain to certain cash flows and a yield-curve **function to reduce** future **to present** cash flows.”

was changed to:

“More beautiful measures use a risk-preference function **rather than the expected value function** to reduce uncertain to certain cash flows and a yield-curve **rather than a simple interest rate to discount** future cash flows.”

Chapter 4, *Learning by Doing*, last paragraph

Changed “**truism**” to “**maxim**” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *The Explicit Experiment*, second to last paragraph

Changed “who” to “**a disillusioned, thrice-wounded veteran of the Union Army, who**” in the last sentence before the quote.

Chapter 7, *An Extraordinary Anomaly*, first paragraph

Changed “universe” to “**world (universe)**” in the second sentence.

Appendix A, *Less is More*, first paragraph, first two sentences

“Modern production systems aim **at the temporal end of** producing efficiently. The Toyota system aims at **the timeless end of producing well.**”

were changed to:

“Modern production systems aim at producing efficiently. The Toyota system aims producing **wisely.**”

Changes in Version 2012.06.05

Preface, fourth paragraph, last sentence

“**Underlying this process of deciding well is a new concept of reason, a concept in which beauty plays an explicit role.**”

was moved to the beginning of the fifth paragraph.

Preface, ninth paragraph

“In “Believing Well,” I **explain how we can refine** everyday thinking. **I go on to explain how we can refine deciding well and why deciding well creates fractal patterns in our knowledge in use. Evidence of these fractal patterns includes power-law distributions in wealth, income, and commodity price changes.**”

was changed to:

“In “Believing Well,” I **outline the process of refining everyday thinking, which includes the process of refining this process.**”

Chapter 1, *Seeing Through Apparent Miracles*, sixth paragraph

Changed “**explain**” to “**communicate**” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Chapter 4, Refining Everyday Thinking, third paragraph, Venn diagram

Moved the Venn diagram to between the second and third paragraphs.

Chapter 4, Refining Everyday Thinking, last three paragraphs

“From the multiple-frame view, we refine our descriptions of the world by testing how well they perform their roles in decision-making. We refine the set of descriptions of the world (S_1) by weeding out descriptions that fail to predict well.² What remains is the set of descriptions that we use to predict (S_2). We also refine the set of descriptions of the world (S_1) by weeding out descriptions that fail to help us find problems to solve well. What remains is the set of descriptions that we use to explain parts of the world (S_3):

“Some parts of the world appear simple enough for us to use a single description to predict and explain ($S_2 \cap S_3$). Within these islands of apparent simplicity, we can test the descriptions that we use to explain by how well they help us to predict. When the descriptions that we use to explain predict well, we say that we have found the truth about this part of the world. If we are wrong about how simple this part of the world is, acting on what we believe to be the truth will yield results that we do not expect. At best, such actions cause nothing more than minor unintended consequences. At worst, they embed mistakes that lead to major catastrophes into our networks of knowledge-in-use.

“Other parts of the world appear too complex for us to use a single description to predict and explain. Within these seas of apparent complexity, we can test the descriptions that we use to predict by how well they help us predict, and test the descriptions that we use to explain by how well they help us find problems to solve. Our descriptions that explain may do nothing more than tell us that we cannot predict what we would like to predict. This is useful information. For example, if our current understanding of weather forecasting tells us that no one can predict the weather in the Indian Ocean two weeks from now, we ought to plan for more than smooth sailing.”

“² Note that we judge the usefulness of these descriptions within bounds. Newtonian mechanics is good for predicting the behavior of large objects moving at low speeds, but poor at predicting the behavior of very small objects or objects moving at very high speeds.”

were changed to:

“We choose descriptions of the world to help us predict within our chosen problems (S_2). We also choose descriptions of the world to help us choose problems to solve (S_3). In both cases, choosing well is an art. It is a matter of judging the ring of truth based on what we currently know about the world. *Beauty plays a role not only in how we create tools for helping us decide, but also in how we use these tools.*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“**We** test the descriptions that we use to predict by how well they help us predict, and test the descriptions that we use to explain by how well they help us find problems to solve. Our descriptions that explain may do nothing more than tell us that we cannot predict what we would like to predict. This is useful information. For example, if our current understanding of weather forecasting tells us that no one can predict the weather in the Indian Ocean two weeks from now, we ought to plan for more than smooth sailing.”

Chapter 4, *Self-Similarity*, second paragraph, first two sentences

“**From** any given level of abstraction, we can describe **correlations** between events, but **cannot explain** the **causation** of events. **We can only explain causation from** a lower level of abstraction.”

were changed to:

“**On** any given level of abstraction, we can describe **the relations** between events, but not the causes of events. **To explain the causes of events, we need to view the world from** a lower level of abstraction.”

Chapter 4, *Self-Similarity*, second paragraph, last sentence

“**The further we are from these means, the greater is the potential for catastrophic releases of pent-up stress from our networks of knowledge-in-use.**”

was deleted.

Chapter 4, *Self-Similarity*, last paragraph

Changed “*doing so, we embed much of*” to “*addressing this problem, we embed*” in the last sentence.

Chapter 4, *Learning by Doing*, third paragraph

“**The problem here concerns the modern economic accounting system, which seeks to measure what we currently want rather than what we truly need to live well.** From the modern economic view, the problem of measuring the value of services is limited, **and** the problem of measuring the value of changes in quality is manageable. In contrast, from the multiple-frame view, the problem of measuring the value of services is universal, **and** the problem of measuring the value of changes in quality is impossibly hard.”

was demoted to a footnote to the last paragraph and changed to:

“From the modern economic view, the problem of measuring the value of services is limited; the problem of measuring the value of changes in quality is manageable; **and national income accountants gather information useful in helping people satisfy their**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

current wants. In contrast, from the multiple-frame view, the problem of measuring the value of services is universal; the problem of measuring the value of changes in quality is impossibly hard; and national statisticians gather information useful in helping people live ever more wisely.”

Chapter 4, *A Crude Look at the Whole*, first paragraph

Changed “In deciding imperfectly, we” to “We” in the fifth sentence.

Chapter 4, *Academic Fields*, entire subsection

Moved this subsection to the end of the Refining Deciding Well section.

Chapter 4, Refining Deciding Well, title

Changed title to “Refining Refining Everyday Thinking.”

Chapter 4, Refining Refining Everyday Thinking, first two paragraphs

“The invariant concept of science described above calls for us to refine the models we use to help us predict how people will decide and the models we use to explain deciding well. We refine the models we use to help us predict how people will decide by weeding out all models that are not clear, concise, and *logical*. What remains is a set of precise models that we use to predict how people will decide. We further refine this set by weeding out models that fail to meet our (evolving) standards for helping us predict what will happen. What remains is a set of refined models that we use to predict how people will decide.³

“We refine the models we use to help us explain deciding well by weeding out all models that are not clear, concise, and *beautiful*. What remains is a set of precise descriptions that we use to explain deciding well. We further refine this set by weeding out models that fail to meet our (evolving) standards for helping us find problems to solve. The rub is that we do not know exactly what it is that we ought to seek.”

³ Milton Friedman defined positive economic science as “a body of tentatively accepted generalizations about economic phenomena that can be used to predict the consequences of changes in circumstances” (Friedman, Milton, “The Methodology of Positive Economics,” *Essays in Positive Economics*, Chicago: University of Chicago Press, 1953, p. 39). **Communication across frames is only partial.** The distinction between theories that describe the world as it is (positive theories) and theories that prescribe the world as it ought to be (normative theories) is not the same as the distinction between theories that describe the world as it is (temporal theories) and theories that describe the world as it is in the process of becoming (timeless theories). Hidden in theories that describe the world as it is in the process of becoming is a description of **what drives the system forward.** **From the multiple-frame view, this driver is the teleonomic program of all living things to live well, hence to pursue all of the boundless factors of deciding well.”**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“We may refine the process of refining everyday thinking by applying the process of refining everyday thinking to itself. This calls for refining the models we use to help us predict how people will decide. We refine these models by weeding out all models that are not clear, concise, and *logical*. What remains is a set of precise models that we use to predict how people will decide. We further refine this set by weeding out models that fail to meet our (evolving) standards for helping us predict what will happen. What remains is a set of refined models that we use to predict how people will decide.³

“Refining the process of refining everyday thinking also calls for refining the models we use to explain deciding well. We refine these models by weeding out all models that are not clear, concise, and *beautiful*. What remains is a set of precise descriptions that we use to explain deciding well. We further refine this set by weeding out models that fail to meet our (evolving) standards for helping us find problems to solve. The rub is that we do not know exactly what it is that we ought to seek.”

³ Milton Friedman defined positive economic science as “a body of tentatively accepted generalizations about economic phenomena that can be used to predict the consequences of changes in circumstances” (Friedman, Milton, “The Methodology of Positive Economics,” *Essays in Positive Economics*, Chicago: University of Chicago Press, 1953, p. 39). The **modern economic** distinction between theories that describe the world as it is (positive theories) and theories that prescribe the world as it ought to be (normative theories) is not the same as the **multiple-frame distinction** between theories that describe the world as it is (temporal theories) and theories that describe the world as it is in the process of becoming (timeless theories). Hidden in theories that describe the world as it is in the process of becoming is a description of the teleonomic program **that drives** all living things to live well, **not the prescription that all living things ought to live well.**”

Chapter 7, *E-M Theory*, second paragraph

Changed “a disaster” to “**as big a disaster as Robert McNamara’s F-111 Aardvark**” in the fourth sentence.

Chapter 8, *Beautiful Reason*, last paragraph

Changed “Reason” to “**the Reasonable concept**” in the third sentence.

Changed “Reason” to “**this concept**” in the fourth sentence.

Changed “Reason” to “**it**” in the fifth sentence.

Chapter 8, *Complete Reason*, first paragraph

Changed “**formally** prove” back to “prove” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix A, Less is More, first paragraph, footnote

“⁴ There is a deeper “less is more” story here. It is that ever-leaner production leads to ever more complexity in our networks of knowledge-in-use. Understanding how information enters and leaves these networks ought to become as important to people who study people as understanding how information enters and leaves black holes has become to people who study physics.”

was deleted.

Changes in Version 2012.06.07

Preface, twelfth paragraph

Changed “explain why we ought to replace our current concept of reason with a boundless form of” to “refine” in the first sentence.

Chapter 1, Choosing Frames Well, last paragraph, footnote, last sentence

“Indispensability in deciding well makes intellectual tools something we discover rather than invent.”

was changed to:

“What makes this approach possible is a concept of reason that allows us to link *beautifully* beliefs that we cannot currently link *logically*. This new concept of reason provides us with a much better means of weeding out “ugly” research programs. It also allows us to avoid the well-known problem that occurs when we apply logical processes to themselves, for instance, when we base processes for believing well on the ultra-empiricist claim that we should dismiss all claims that we cannot prove empirically, which is a claim that we cannot prove empirically.”

Chapter 3, Public Entropy, second paragraph

“As we learn to decide ever more wisely, we learn to work together ever more wisely. The process of learning to work together ever more wisely is not continuous. Imagine a battalion of raw recruits. Now imagine that we begin to replace raw recruits one at a time with highly trained and seasoned soldiers. Each replacement may have little effect, some effect, or a large effect on the ability of the battalion to act as a unit. Physical analogues of the largest effects include transitions to superconductivity and superfluidity.⁵”

“⁵ Contemplating what happens to people in the infinitely long run is like studying what happens in physics at near absolute zero temperature. People working together perfectly

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

act as if they were a single person deciding perfectly, much as weakly interacting bosons at their lowest energy state act as if they were a single boson.”

was demoted to a footnote in the fourth paragraph of *Forward-Looking Science* and changed to:

“⁷ As we learn to decide ever more wisely, we learn to work together ever more wisely. The process of learning to work together ever more wisely is not continuous. Imagine a battalion of raw recruits. Now imagine that we begin to replace raw recruits one at a time with highly trained and seasoned soldiers. Each replacement may have little effect, some effect, or a large effect on the ability of the battalion to act as a unit. Physical analogues of the largest effects include transitions to superconductivity and superfluidity. People working together perfectly act as if they were a single person deciding perfectly, much as weakly interacting bosons at their lowest energy state act as if they were a single boson.”

Chapter 4, *Learning by Doing*, third paragraph

Changed “**national** accounting” to “accounting” in the first sentence.

Changes in Version 2012.06.08

Preface, eighth paragraph, last sentence

“**This includes waste related to our less than perfectly useful descriptions of the world.**”

was deleted.

Chapter 1, *Choosing Frames Well*, first paragraph

Changed “**the ambiguity of**” to “ambiguity **within**” in the third sentence.

Changed “ambiguity **within these structures**” to “ambiguity” in the fourth sentence.

Chapter 1, *Choosing Frames Well*, first paragraph

Changed “**perceiving the world**” to “**conceiving the world (reducing our sensations of the world to concepts)**” in the last sentence.

Chapter 1, *Choosing Frames Well*, second paragraph

Changed “**reduce our sensations to concepts**” to “**conceive the world**” in the first sentence.

Chapter 1, *Choosing Frames Well*, last paragraph, footnote, fifth sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “As we shall see, this” to “This” and “much better” to “more formal” in the fourth sentence.

Changed “allows us to avoid” to “provides us with a means of solving” in the fifth sentence.

Chapter 1, Useful Frames, first paragraph, footnote, last two sentences

“⁶ In his book *Ten Philosophical Mistakes* (New York: Macmillan, 1985, p. 137), Mortimer Adler uses the term ‘normative’ rather than ‘timeless’ to express this concept of an end unbounded in time. The term ‘normative’ emphasizes that we owe it to ourselves (ought) to pursue such ends. In contrast, the term ‘timeless’ emphasizes that the process of pursuing such ends is not bounded in time.”

was deleted.

Chapter 4, Refining Refining Everyday Thinking, footnote, second through last sentences

“³ Milton Friedman defined positive economic science as “a body of tentatively accepted generalizations about economic phenomena that can be used to predict the consequences of changes in circumstances” (Friedman, Milton, “The Methodology of Positive Economics,” *Essays in Positive Economics*, Chicago: University of Chicago Press, 1953, p. 39). The modern economic distinction between theories that describe the world as it is (positive theories) and theories that prescribe the world as it ought to be (normative theories) is not the same as the multiple-frame distinction between theories that describe the world as it is (temporal theories) and theories that describe the world as it is in the process of becoming (timeless theories). Hidden in theories that describe the world as it is in the process of becoming is a description of the teleonomic program that drives all living things to live well, not the prescription that all living things ought to live well.”

was deleted.

Chapter 4, A Crude Look at the Whole, first paragraph, last footnote

Changed “releases of stress from these networks create power-law distributions” to “these networks are fractal and releases of stress from them follow a power law” in the first sentence.

Changed “Misbehavior” to “(Mis)behavior” in the last sentence.

Changes in Version 2012.06.09

Chapter 1, Choosing Frames Well, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “perceiving the world” to “conceiving the world (reducing our sensations of the world to concepts)” in the last sentence.

Chapter 1, Choosing Frames Well, second paragraph

Changed “reduce our sensations to concepts” to “conceive the world” in the first sentence.

Chapter 1, Values, third paragraph

Changed “values” to “these values” in the last sentence.

Chapter 1, Values, fourth paragraph

Changed “, but” to “. However,” in the last sentence.

Chapter 1, Steps for Building Multiple-Frame Models, first paragraph

Changed “two” to “three” in the first sentence.

Added the sentence: “The third is adding what we currently believe we know about pursuing this boundless factor to this frame.”

Chapter 2, Consumption, first paragraph

Changed “We live well by consuming ” to “Living well consumes” in the first sentence.

Chapter 2, Chicago Screwdrivers, first paragraph

Added the footnote:

“³ Communication across frames is only partial. We may use invariant models to predict future turbulence in the flow of economic resources. We may also use these models to help us find problems to solve. We base the former on the belief that all living beings seek to live well. We base the latter not only on this belief, but also on the belief that we *ought* to live well. There is little need to distinguish between what Milton Friedman called positive and normative economics (Friedman, Milton, “The Methodology of Positive Economics,” *Essays in Positive Economics*, Chicago: University of Chicago Press, 1953).”

Chapter 2, Three Common Mistakes, second paragraph

Changed “second” to “third” in the first sentence.

Changed “As we shall see, this” to “This” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Moved paragraph to the end of the subsection.

Chapter 2, *Three Common Mistakes*, new second paragraph

Changed “**third**” to “**second**” in the first sentence.

Changed “**In the long run, competing**” to “**Competing**” in the last sentence.

Chapter 3, *Pursuing the Ring of Truth*, second paragraph

Changed “**making it part of our multiple-frame model**” to “**adding what we currently believe we know about contemplating well to it, which includes what we currently believe we know about pursuing other boundless factors of deciding well**” in the last sentence.

Chapter 3, *Contemplating the Way Forward*, third paragraph, second sentence

“**The best we can do is to find a recursive process that will yield ever better approximations of them.**”

was deleted.

Chapter 3, *Overcoming Constraints in Deciding Well*, second paragraph

Changed “**mathematics**” to “**modern mathematics**” in the first sentence.

Chapter 3, *The Elephant in the Room*, last paragraph

Changed “**untestable**” to “**unfalsified**” in the second sentence.

Chapter 4, *Refining Everyday Thinking*, fourth paragraph

Changed “**how we create**” to “**creating**” and “**how we use**” to “**using**” in the last sentence.

Chapter 4, *Refining Everyday Thinking*, last paragraph, last three sentences

“**Our descriptions that explain may do nothing more than tell us that we cannot predict what we would like to predict. This is useful information. For example, if our current understanding of weather forecasting tells us that no one can predict the weather in the Indian Ocean two weeks from now, we ought to plan for more than smooth sailing.**”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Descriptions that explain may do nothing more than tell us that we cannot predict what we would like to predict. If **we know** that no one can predict the weather **ten days** from now, we ought to plan for more than smooth sailing.”

Chapter 4, *Recursivity*, first paragraph

Changed “**statement**” to “**belief**” in the fifth sentence.

Changed “**description**” to “**belief**” in the last sentence.

Chapter 4, *Recursivity*, last paragraph

Changed “**know**” to “**observe**” in the third sentence.

Chapter 4, Refining Refining Everyday Thinking, fifth paragraph

Changed “**all previous generations of human**” to “**our ancestors**” in the fourth sentence.

Chapter 4, *Learning by Doing*, second paragraph

Changed “**Workers** prefer fixed **to flexible**” to “**People** prefer fixed **to variable**” in the sixth sentence.

Chapter 4, Useful Reminders, last paragraph

Changed “**this** approach” to “**the multiple-frame** approach” in the second sentence.

Chapter 5, *The Explicit Experiment*, second paragraph

Changed “**scholars**” to “**historians**” in the third sentence.

Changed “**an eighteenth-century**” to “**Franklin’s**” in the fifth sentence.

Chapter 5, *The Explicit Experiment*, fifth paragraph

Changed “**disillusioned**” to “**disenthralled**” in all (1 occurrence).

Chapter 6, A Hole in Happiness, title

Changed title to “A Hole in **Pursuing** Happiness.”

Chapter 6, A Hole in Pursuing Happiness, first paragraph

Changed “**refining beliefs about**” to “**defining concepts useful in**” in the second sentence.

Changed “in **refining beliefs about**” to “in” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 6, *Mystical Oneness*, third paragraph

Changed “practicable” to “worldly” in the third sentence.

Chapter 6, *Worldly Benefits of Detachment*, last paragraph

Changed “stream of words” to “stream of consciousness” in the second to last sentence.

Chapter 8, *Beautiful Reason*, second paragraph

Changed “Models of the world that we use to predict and explain” to “The models we use to describe the world” in the first sentence.

Changed “rules (axioms, principles, laws)” to “rules” in the second sentence.

Chapter 8, *Beautiful Reason*, fifth paragraph

“When we pursue the timeless end of deciding well (**Wisdom**) by pursuing the boundless factors of deciding well, we seek not only to find the best solution to given problems, but also the best problems to solve **in pursuing Wisdom**. Reason concerns not only the frames we use to solve given problems, but also the frames that we use to find problems to solve **in pursuing Wisdom**. Excellence in finding problems to solve **in pursuing Wisdom** calls for models that are ambiguous with respect to the timeless ends of all boundless factors of deciding well and the means of pursuing these ends. We may call the set of rules that we use to relate beliefs well within these frames *the rules of Reason*.³”

was changed to:

“When we pursue the timeless end of deciding well by pursuing the boundless factors of deciding well, we seek not only to find the best solution to given problems, but also the best problems to solve. Reason concerns not only the frames we use to solve given problems, but also the frames that we use to find problems to solve. Excellence in finding problems to solve calls for models that are ambiguous with respect to the timeless ends of all boundless factors of deciding well and the means of pursuing these ends. We may call the set of rules that we use to relate beliefs well within these frames *the rules of Reason*.³”

Chapter 8, *Beautiful Reason*, sixth paragraph

Changed “these forms” to “these **three** forms” and “the Truth” to “**the timeless end of believing well** (the Truth)” in the first sentence.

Changes in Version 2012.06.11

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, fourth paragraph

Changed “deciding well **for helping us choose problems to solve**” to “deciding well” in the last sentence.

Preface, fifth paragraph, first sentence

Moved sentence to the end of the fourth paragraph.

Chapter 1, Choosing Frames Well, last paragraph, footnote, last three sentences

“What makes this approach possible is a concept of reason that allows us to link *beautifully* beliefs that we cannot currently link *logically*. This new concept of reason provides us with a more formal means of weeding out “ugly” research programs. It also provides us with a means of solving the well-known problem that occurs when we apply logical processes to themselves, for instance, when we base processes for believing well on the ultra-empiricist claim that we should dismiss all claims that we cannot prove empirically, which is a claim that we cannot prove empirically.”

were deleted.

Chapter 2, Chicago Screwdrivers, first paragraph, footnote

“³ Communication across frames is only partial. We may use invariant models to help us predict future turbulence in the flow of economic resources. We may also use these models to help us find problems to solve. We base the former on the belief that all living beings seek to live well. We base the latter not only on this belief, but also on the belief that we *ought* to live well. There is little need to distinguish between what Milton Friedman called positive and normative economics (Friedman, Milton, “The Methodology of Positive Economics,” *Essays in Positive Economics*, Chicago: University of Chicago Press, 1953).”

was deleted.

Chapter 3, Contemplating the Way Forward, last paragraph

Changed “*timeless end*” to “**timeless end**” in the fourth sentence.

Changed “*transcendental end*” to “**transcendental end**” in the seventh sentence.

Chapter 8, Complete Reason, first paragraph, fourth through seventh sentences

“First, **pursuing the Truth is an endless process**. **Second**, for any set of rules for pursuing the Truth, we will either discover or never discover the Truth. **Third**, if we discover the Truth, we prove that the set of rules for pursuing the Truth is complete. **Fourth**, if we

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

never discover the Truth, we never prove that the set of rules for pursuing the Truth is complete.”

was changed to:

“First, for any set of rules for pursuing the Truth, we will either discover or never discover the Truth. **Second**, if we discover the Truth, we prove that the set of rules for pursuing the Truth is complete. **Third**, if we never discover the Truth, we never prove that the set of rules for pursuing the Truth is complete. **Fourth**, pursuing the Truth is an endless process.”

Changes in Version 2012.06.13

Chapter 4, Self-Similarity, first paragraph

“Refining everyday thinking is the process of ridding ourselves of ever more ignorance about the world. This ignorance produces not only poor predictions, but also poor explanations of causation.”

was changed to:

“Again, we use descriptions of the world to predict and explain. A prediction is knowledge of what is apt to happen. Predictions help us to assign probabilities to uncertain events, which helps us to evaluate alternatives. Explanations help us to understand how our actions may change the world, which helps us to formulate alternatives. Better predictions help us become more efficient and better explanations help us become more effective. *The distinction between efficiency and effectiveness depends on the scale of the problem we choose.*”

Chapter 4, Useful Reminders, title and first paragraph

“Useful Reminders

From the multiple-frame view, believing well calls for us to decide well, which in turn calls for us to pursue all of the boundless factors of deciding well. Pursuing these factors well gives rise to the invariant concept of science as the endless process of refining everyday thinking.”

were changed to:

“**Testing Invariant Science as a Whole**”

Chapter 4, Testing Invariant Science as a Whole, new first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the multiple-frame view, not everything that counts can be counted, and not everything that can be counted counts. Further, the models we use to explain what ants do do not change what ants do, but the models we use to explain what we do often change what we do. Mindlessly applying the tools of the true sciences to the public sciences ignores the two-way relation between the world and our beliefs about the world. Such foolishness leads to catastrophe.”

was appended to the end of the preceding subsection and changed to:

“However useful modern biological models are in helping us recognize our needs, we should never use them to explain our behavior. Models that we use to explain what ants do do not change what ants do, but the models that we use to explain what we do change often what we do. Mindlessly applying the tools of the true sciences to the public sciences ignores the two-way relation between the world and our beliefs about the world. Such foolishness leads to catastrophe.

“Finally, we ought never to forget the sign above Einstein’s desk at the Institute for Advanced Study: *Not everything that counts can be counted, and not everything that can be counted counts.*”

Changes in Version 2012.06.15

Acknowledgments, first paragraph

Changed “high school” to “public high school” in the first sentence.

Acknowledgments, second paragraph

Changed “modern economic” to “economic” in the tenth sentence.

Preface, sixth paragraph

Changed “complex” to “complex adaptive” in the second sentence.

Preface, seventh paragraph

Changed “boundless” to “timeless” and “modern economic” to “marginalist economic” in the first sentence.

Preface, second to last paragraph

Changed “comparing the modern and boundless views of” to “redefining” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, last paragraph

Changed “complex” to “complex **adaptive**” in the first sentence.

Chapter 1, Setting Words Aright, last paragraph

Changed “**new**” to “**unfamiliar**” in the second to last sentence.

Chapter 1, Values, fifth paragraph

Changed “**the Europeans**” to “**they**” in the second to last sentence.

Chapter 2, Invariant Tools for Deciding Well, second paragraph

Changed “**Modern** economics” to “**Marginalist** economics” in first sentence.

Changed “**modern** economics” to “**marginalist** economics” in second sentence.

Added the following footnote to the first sentence:

“² **Marginalist economics is a collection of tools for *describing the world as it currently is*. The Chicago school distinguishes itself from other marginalist schools by distinguishing between tools for *describing the world as it currently is* (“positive economics”) and prescribing the world as it ought to be (“normative economics”). The “recursionist” approach to economics put forth in this work competes against the Austrian and Marxist schools in *describing the world as it is in the process of becoming* and *prescribing the world as it ought to be*. Note that the difference between tools for *describing the world as it is in the process of becoming* and tools for *prescribing the world as it ought to be* is the reasonable claim that we *ought to live well*.”**

Chapter 2, Invariant Tools of Deciding Well, third paragraph

Changed “**modern** economics” to “**marginalist** economics” in first sentence.

Chapter 2, Chicago Screwdrivers, first paragraph

Changed “**modern** economics” to “**marginalist** economics” in third sentence.

Changed “**modern** economics” to “**marginalist** economics” in fifth sentence.

Chapter 2, Profit, first paragraph

Changed “**modern** economics” to “**marginalist** economics” in first sentence.

Chapter 5, Civil Faith, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “hometown” to “boyhood home” in third sentence.

Chapter 7, *Timeless OODA Loop Analysis*, last paragraph

Changed “formulate” to “help formulate” in the first sentence.

Chapter 7, *The Scope of Evolution*, entire section, including title

Changed “evolution” to “biological evolution” in all (3 occurrences).

Chapter 4, *Testing Invariant Science as a Whole*, new first paragraph

“We ought to pursue the Truth using a set of rules for pursuing the Truth that contains a complete subset of rules for refining this set of rules.⁴”

“*More accurately, we ought to pursue the Truth using a set of known and unknown rules for pursuing the Truth that contains a complete subset of rules for refining this set of rules including itself.*”

was changed to:

“We ought to pursue the Truth using a set of *known and unknown* rules for pursuing the Truth that contains a complete subset of rules for refining this set of rules *including itself.*”

Chapter 8, *Complete Reason*, last paragraph, new second footnote

Deleted “(Raphael)” from the third sentence.

Chapter 8, *Summary*, first paragraph

Changed “entanglement problem” to “entanglement and observer problems” in the second sentence.

Changes in Version 2012.06.16

Acknowledgments, first paragraph

Changed “high school” to “public high school” in the first sentence.

Preface, fourth paragraph

Changed “in which beauty plays an explicit role” to “that calls for us to address our ignorance beautifully” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Values, sixth paragraph

Changed “**the meaning of ‘rain’ or their rule**” to “**their rule or the meaning of ‘rain’**” in the last sentence.

Chapter 2, Invariant Tools for Living Well, last paragraph, footnote

Changed “**As a result, their concept of ‘multiplex view’** does not ring true with the **invariant strategy/perennial philosophy/natural reasoning**” to “**Their concept does not ring true with the natural reasoning**” in the last sentence.

Chapter 3, Pursuing the Ring of Truth, second paragraph

Changed “**According to our model**” to “**Following the steps**” in the first sentence.

Chapter 3, The Elephant in the Room, first paragraph

Changed “**inevitably discover**” to “discover” and “well” to “**well, which appears to be as indispensable to deciding well as mathematics and logic**” in the last sentence.

Chapter 3, The Elephant in the Room, second paragraph

Changed “**inevitably discover**” to “discover” and “well” to “**well, which appears to be as indispensable to deciding well as mathematics and logic**” in the last sentence.

Chapter 4, *Self-Similarity*, first paragraph, second sentence

“**A prediction is knowledge of what is apt to happen.**”

was deleted.

Chapter 4, Testing Invariant Science as a Whole, title

Deleted “**as a Whole.**”

Chapter 8, Complete Reasoning, last paragraph, first footnote

Changed “**Wisdom**” to “**the Truth**” in the last sentence.

Chapter 8, Complete Reasoning, last paragraph, second footnote

Changed “**premises**” to “**arguments**” in the first sentence.

Changes in Version 2012.06.18

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, Invariant Tools for Living Well, last paragraph, footnote, last sentence

“Their concept does not ring true with the natural reasoning put forth in this work.”

was reduced to a clause appended to the last sentence:

“, which emerges from the demand side.”

Chapter 4, Refining Everyday Thinking, end

Added the paragraph:

“The whole of science is nothing more than the endless process of refining everyday thinking. We may call this process *invariant science*.”

Chapter 4, Refining Refining Everyday Thinking, third and fourth paragraphs

“From the multiple-frame view, we ought to seek what we need to decide well. Defining what we ought to seek as something other than those things that we need to decide well leads us to embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use; that is, into our markets, technologies, legal systems, languages, and cultures. **The greatest danger is in public policy. We tend to discover and correct our private mistakes. In contrast, policymakers often fail to discover and correct their mistakes. A classic example is the mercantilist concept of wealth as precious metal coins and bullion, which tended to blind policymakers to Adam Smith’s virtuous circle of the division of labor and the expansion of market size. Similarly, the modern concept of wealth as those things that people want and the resources to produce those things that people want tends to blind policymakers to the virtuous circle of good people and good products.**”

“Just as Taiichi Ohno envisioned a corporate research program based on refining knowledge of producing in batches well, we can envision a public research program for refining **our** knowledge of deciding well. One way that we can refine this knowledge is to weed out all models that are not useful to people in all circumstances. For example, we can weed out all models that concern only our bodies, only our minds, and only our spirits from the set of theories that we use to define what we need to live well.³ To think of ourselves as animals, as computers, or as angels, rather than as people, is certain to embed major mistakes into our networks of knowledge-in-use. We ought to consider our bodies, minds, and spirits.⁴”

were changed to:

“**A Strategy for Learning**”

From the multiple-frame view, we ought to seek what we need to decide well. Defining what we ought to seek as something other than those things that we need to decide well leads us to embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use; that is, into our markets, technologies, legal systems, languages, and cultures. Just as

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Taiichi Ohno envisioned a corporate research program based on refining knowledge of producing in batches well, we can envision a public research program for refining knowledge of deciding well.

“One way that we can refine this knowledge is to weed out all models that are not useful to people in all circumstances. For example, we can weed out all models that concern only our bodies, only our minds, and only our spirits from the set of theories that we use to define what we need to live well.³ To think of ourselves as animals, as computers, or as angels, rather than as people, is certain to embed major mistakes into our networks of knowledge-in-use. We ought to consider our bodies, minds, and spirits.⁴”

Chapter 4, A Strategy for Learning, last paragraph

Changed “are incompatible” to “do not ring true” in the first sentence.

Chapter 4, *Learning by Doing*, first two paragraphs

“We can improve our ability to decide well by understanding our failures. There are many ways to seek this knowledge. We can look for what we did or did not do. Did we waste resources, fail to find the best problem to solve, or fail to solve the problem? We can look for the factors of deciding well that we lacked. Did we lack wisdom, freedom, trust, capital, or time? We also can look for common patterns in our failures.

“One such pattern concerns trading problems that give rise to the uneven flow of resources. The uneven flow of resources wastes time and other resources. Smoothing this flow often calls for trading. Mistrust and ignorance of better means of trade often constrain us from making such trades. Distributors fail to share knowledge about their customers with their suppliers for fear of losing business. Workers fail to tell their bosses about foolish procedures for fear of losing work. People prefer fixed to variable pay, which leads to layoffs during slow times. We have yet to discover and solve many other trading problems that give rise to uneven flow.”

were moved to the end of the third paragraph of the previous subsection and changed to:

“Yet another way we can refine our knowledge of deciding well is to understand our failures. There are many ways to seek this knowledge. We can look for what we did or did not do. Did we waste resources, fail to find the best problem to solve, or fail to solve the problem? We can look for the factors of deciding well that we lacked. Did we lack wisdom, freedom, trust, capital, or time? We also can look for common patterns in our failures. For example, we can look for trading problems that give rise to the uneven flow of resources. The uneven flow of resources wastes time and other resources. Smoothing this flow often calls for trading. Mistrust and ignorance of better means of trade often constrain us from making such trades. Distributors fail to share knowledge about their customers with their suppliers for fear of losing business. Workers fail to tell their bosses about foolish procedures for fear of losing work. People prefer fixed to variable pay,

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

which leads to layoffs during slow times. We have yet to discover and solve many other trading problems that give rise to uneven flow.”

Chapter 4, *Learning by Doing*, title and new first paragraph

“*Learning by Doing*

Another such pattern concerns using temporal tools to find temporal problems to solve. Perhaps the best example of this is the modern economic accounting system. Imagine a pill that makes people decide better. Releasing this product would change how people decide to live. Some parts of the economy would shrink and other parts would grow. Resources would flow from the shrinking parts to the growing ones. The immediate effect would be a fall in aggregate production and a rise in unemployment. Modern economic science would portray one of the greatest advances in human history as a disaster.”

were changed to:

“*Modern Macroeconomic Mistakes*

We tend to discover and correct our private mistakes. In contrast, policymakers tend not to discover and correct their mistakes. A classic example is the mercantilist concept of wealth as precious metal coins and bullion, which tended to blind policymakers to Adam Smith’s virtuous circle of the division of labor and the expansion of market size. Similarly, the modern concept of wealth as those things that people want and the resources to produce those things that people want tends to blind policymakers to the grander virtuous circle of good people and good products.

“*Consider modern* economic accounting. Imagine a pill that makes people decide better. Releasing this product would change how people decide to live. Some parts of the economy would shrink and other parts would grow. Resources would flow from the shrinking parts to the growing ones. The immediate effect would be a fall in aggregate production and a rise in unemployment. Modern economic science would portray one of the greatest advances in human history as a disaster.”

Chapter 4, *A Crude Look at the Whole*, title and new first sentence

“*A Crude Look at the Whole*

When we decide well, we create economic stress, the need to reallocate resources.”

were changed to:

“*Further, consider modern macroeconomic policies.* When we decide well, we create economic stress, the need to reallocate resources.”

Chapter 4, *Modern Macroeconomic Mistakes*, last paragraph, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“To ignore this frozen stress is not only to live in a fool’s paradise, but also to bequeath the habits of living in a fool’s paradise to future generations.”

was deleted.

Chapter 4, *Academic Fields*, last paragraph

“Finally, we ought never to forget the sign above Einstein’s desk at the Institute for Advanced Study: *Not everything that counts can be counted, and not everything that can be counted counts.*”

was deleted.

Changes in Version 2012.06.20

Preface, third paragraph, second sentence

“Over time, we collectively learn that there exist universally useful and inexhaustible factors of deciding well that we can never have in excess.”

was changed to:

“Over time, we collectively learn that **the timeless end of believing well (the truth) is a universally useful and inexhaustible factor of deciding well that we can never have in excess.** We also learn that there exist **other** universally useful and inexhaustible factors of deciding well that we can never have in in excess.”

Preface, fourth paragraph, second sentence

Inserted the sentence:

“By providing us with a coherent means of integrating many views of the world, these models overcome the worst of the problems that arise from reducing our sensations of the world to concepts.”

Chapter 4, *Modern Macroeconomic Mistakes*, fifth paragraph

Changed “**complexity**” to “*deterministic chaotic and complex adaptive systems*” in the first sentence.

Chapter 4, *Modern Macroeconomic Mistakes*, last paragraph

Changed “**retard** progress and **increase the probability of catastrophes**” to “**slow** progress and **worsen turbulence**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *Academic Fields*, last paragraph, last two sentences

“However useful modern biological models are in helping us recognize our needs, we should never use them to explain our behavior. Models that we use to explain what ants do do not change what ants do, but the models that we use to explain what we do often change what we do. Mindlessly applying the tools of the true sciences to the public sciences ignores the two-way relation between the world and our beliefs about the world. Such foolishness leads to catastrophe.”

was deleted.

Chapter 7, The Scope of Biological Evolution, second paragraph, end

Added the sentences:

“Further, applying the tools of the true sciences to the public sciences ignores the two-way relation between the world and our beliefs about the world. To wit, the models that we use to explain what ants do never change what ants do, but the models that we use to explain what we do often change what we do. Ignoring this two-way relation both slows progress and worsens turbulence.”

Chapter 8, Complete Reason, last paragraph

Changed “*known and unknown*” to “all not yet discarded” in the second sentence.

Chapter 8, Complete Reason, last paragraph, second footnote, last sentence

Inserted the sentence:

“Regardless of our personal beliefs about the nature of this mysterious element, addressing our ignorance beautifully can help us reason ever more wisely.”

Changes in Version 2012.06.22

Title page of Acrobat version

Revised wording of the Internet/working version warning.

Entire document

Checked and updated reference dates on all external links.

Acknowledgments, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Dropped middle names and relation clauses.

Preface, third paragraph

“According to this model, when we decide well, we learn ever more about deciding well. Over time, we collectively learn that the timeless end of believing well (the truth) is a universally useful and inexhaustible factor of deciding well that we can never have in excess. We also learn that there exist other universally useful and inexhaustible factors of deciding well that we can never have in excess. Further, we learn that the endless pursuits of all of these “boundless factors” intertwine to form a single endless pursuit:”

was appended to the second paragraph and changed to:

“We overcome these constraints by learning ever more about deciding well.

“Over time, we collectively learn that the timeless end of believing well (the truth) is one of many universally useful and inexhaustible factors of deciding well that we can never have in excess. We also learn that the endless pursuits of all of these “boundless factors” intertwine to form a single endless pursuit:”

Preface, fourth paragraph, first sentence

“By providing us with a coherent means of integrating many views of the world, these models overcome the worst of the problems that arise from reducing our sensations of the world to concepts.”

was deleted.

Preface, fourth paragraph

Changed “process of deciding well” to “complex adaptive process” and “address our ignorance beautifully” to “define and digest our ignorance” in the last sentence.

Preface, fifth paragraph

Changed “concept of reason with a concept based on the multiple-frame approach to deciding well” to “concepts of reason with a new concept” in the first sentence.

Chapter 1, Useful Frames, second paragraph, fifth sentence

“A formal decision *event* consists of formulating alternatives, evaluating alternatives, choosing an alternative, and implementing the chosen alternative. To decide well is to decide perfectly.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“A formal decision *event* consists of formulating **solutions to the given problem**, evaluating **these solutions**, choosing **a solution**, and implementing the chosen **solution**.”

Chapter 1, Useful Frames, last paragraph

Changed “**various** solutions” to “solutions” in the fourth sentence.

Deleted the fifth sentence: “**To decide well is *not* to decide perfectly.**”

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Changed “**frame**” to “**view**” in the first and fourth sentences (2 occurrences).

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph

Changed “frame” to “**bare** frame” in the last sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, first paragraph, footnote

Changed “*the Good*” to “*the Good, Well-being, Welfare, or Eudaimonia*” in the first sentence.

Chapter 1, Values, second paragraph, last sentence

Reversed the order of the definitions.

Chapter 2, Invariant Tools for Deciding Well, last paragraph, footnote

Changed “**emerges from**” to “**is on**” in the last sentence.

Chapter 2, *Three Common Mistakes*, last paragraph

Changed “product quality” to “**tangible** product quality” in the first sentence.

Chapter 2, *Three Common Mistakes*, last paragraph, second sentence

“**This belief leads us to believe that teak is teak regardless of its source.**”

was changed to:

“**For example, it makes no difference whether a rare coin was stolen, a designer handbag was produced off the books, or teak was smuggled out of a rainforest.**”

Chapter 2, Production, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Production is the intended result of producing well. From the temporal view, **people do not** intend to learn through experience, to push back their “production-possibility” frontiers. **Production does not include what people learn through experience.** In contrast, from the multiple-frame view, **we do** intend to learn through experience, to push back our “efficiency” frontiers. **Production includes what we learn through experience.**”

was changed to:

“Production is the intended result of producing well. From the temporal view, **production does not include what people learn through experience.** **People do not** intend to learn through experience, to push back their “production-possibility” frontiers. In contrast, from the multiple-frame view, **production includes what we learn through experience.** **We** intend to learn through experience, to push back our “efficiency” frontiers.”

Chapter 3, Pursuing the Ring of Truth, second paragraph

Changed “**skeletal** frame” to “**bare** frame” in the second sentence.

Chapter 3, Pursuing the Ring of Truth, third paragraph

Changed “**this skeletal** frame” to “**the** frame **of contemplating well**” in the first sentence.

Chapter 3, *Forward-Looking Science*, first paragraph

Changed “**decision science**” to “**deciding well**” in the first sentence.

Chapter 3, *Forward-Looking Science*, last paragraph

Changed “view **of decision science**” to “**multiple-frame** view” in the third sentence.

Changed “**From the multiple-frame view, the**” to “**The**” in the fourth sentence.

Chapter 4, *Self-Similarity*, second paragraph

Changed “view **of the Copenhagen class of interpretations of quantum mechanics**” to “**Copenhagen** view” in the third sentence.

Changed “view **of the decision class**” to “**multiple-frame** view” in the fifth sentence.

Chapter 4, Refining Refining Everyday Thinking, last paragraph

Changed “**precise** descriptions” to “**beautiful** descriptions” in the third sentence.

Chapter 4, *Modern Macroeconomic Mistakes*, fourth paragraph, footnote, end

Added the sentence:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“This is consistent with the historical inverse relation between the rate of unemployment and the rate of inflation commonly known as the Phillips curve.”

Chapter 4, *Modern Macroeconomic Mistakes*, fourth paragraph

Changed “We” to “From the multiple-frame view, we” in the seventh sentence.

Chapter 5, *The Explicit Experiment*, fourth paragraph

Changed “the Union Army” to “Lincoln’s Army of the Potomac” in the last sentence.

Chapter 5, *Pursue Invariant, not Temporal Order*, first paragraph, footnote, last two sentences

“Central bankers should not bury the problems that disrupt the smooth flow of resources. They should not hide these problems from the people best able to address them.”

were changed to:

“Central bankers should neither bury the problems that disrupt the smooth flow of resources, nor shield the people best able to address these problems.”

Chapter 6, *Heroic Death*, last paragraph

Changed “ourselves” to “ourselves and others” in the first sentence.

Chapter 7, *Boyd’s Grand Strategy*, first paragraph

Changed “products, which he called ingredients” to “products” in the second sentence.

Chapter 7, *Boyd’s Grand Strategy*, last paragraph

Changed “premise that we naturally” to “modern biological belief that we” in the first sentence.

Chapter 7, *Boyd’s Grand Strategy*, first paragraph, last footnote, last sentence

“Note that Boyd conceived deciding well as a recursive process, a process in which the products of one cycle become the ingredients of the next cycle.”

was changed to:

“Note that Boyd called these products *ingredients*. This is consistent with his belief that deciding well is a recursive process, a process in which the products of one cycle become the ingredients of the next cycle.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 7, *Boyd's Grand Strategy*, last paragraph, footnote, last two sentences

“The best we can do is to disprove experimentally that the most beautiful tools for deciding well, which are the tools that ring truest with all that we currently know about deciding well, are indispensable in deciding well. We do so by acting as if these tools are indispensable in deciding well.”

were changed to:

“However, we can seek to disprove experimentally that the tools that ring truest with all that we currently know about deciding well are indispensable in deciding well by acting as if these tools are indispensable in deciding well.”

Chapter 7, *The Scope of Biological Evolution*, second paragraph, fifth sentence

“To wit, the models that we use to explain what ants do never change what ants do, but the models that we use to explain what we do often change what we do.”

was deleted.

Chapter 8, title, second quote

““So if you look back at the history of the beginning of this century you'll see papers by logicians studying the foundations of mathematics in which they had programming languages. Now you look back and you say this is clearly a programming language! If you look at Turing's work, you see, of course, there's a machine language. If you look at papers by Alonzo Church, you see the lambda calculus, which is a functional programming language. If you look at Gödel's original paper, you see what to me looks like LISP. It's very close to LISP. It begs to be rewritten in LISP.” — *Gregory Chaitin2*”

was deleted.

Chapter 8, *Beautiful Reason*, second paragraph, second and third sentences

“We may call excellence in relating beliefs *reason*. We may also call the rules that we use to help us relate beliefs well *the rules of reason*.”

were changed to:

“We may call excellence in relating beliefs *reason* and the rules that we use to help us relate beliefs well *the rules of reason*.”

Chapter 8, *Beautiful Reason*, second paragraph, last sentence

“Excellence in relating beliefs depends on the type of end we choose to pursue.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was moved to the beginning of the next paragraph.

Chapter 8, Beautiful Reason, sixth paragraph, first sentence

Added the following footnote:

“³ The inspiration for this approach was an observation that mathematician Gregory Chaitin made in the introductory remarks of a lecture he gave at the Carnegie Mellon University’s School of Computer Science on March 2, 2000: “So if you look back at the history of the beginning of this century you’ll see papers by logicians studying the foundations of mathematics in which they had programming languages. Now you look back and you say this is clearly a programming language! If you look at Turing’s work, you see, of course, there’s a machine language. If you look at papers by Alonzo Church, you see the lambda calculus, which is a functional programming language. If you look at Gödel’s original paper, you see what to me looks like LISP. It’s very close to LISP. It begs to be rewritten in LISP.” A video of this lecture is available online at <http://www.youtube.com/watch?v=HLPO-RTFU2o> (22 June 2012).”

Chapter 8, Complete Reason, last paragraph, second footnote

Changed “**mysterious** element” to “element” and “**addressing** our ignorance **beautifully**” to “**defining** our ignorance **ever more completely**” in the fourth sentence.

Changed “**published** version” to “**final** version” and “element” to “**mysterious** element” in the last sentence.

Changes in Version 2012.06.26

Chapter 2, *Tools for Pursuing Pleasure and Joy*, first paragraph, first sentence

“**Pursuing** the virtuous circle of pleasure and joy **calls for** tools for helping us to choose paths forward.”

was changed to:

“**To pursue** the virtuous circle of pleasure and joy **well, we need** tools for helping us choose paths forward.”

Chapter 2, *Tools for Pursuing Pleasure and Joy*, second paragraph

Changed “**also** needs” to “needs” in the first sentence.

Chapter 3, Pursuing the Ring of Truth, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “helps us decide” to “helps us **to** decide” in the first sentence.

Chapter 3, *Public Entropy*, last paragraph

Changed “EOQ” to “EOQ/**RTS**” in the second sentence.

Chapter 8, Complete Reason, second paragraph, last footnote

“Consider the holism of W. V. O. Quine. *From Quine’s view, the philosophy of science is philosophy enough.* We see conflicts in our belief systems. Now consider the holism of the multiple-frame approach to deciding well. From the multiple-frame view, *the philosophy of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of deciding well.* We see holes as well as conflicts in our belief systems. For example, we see that Morton White was right to criticize Quine’s philosophy for being too narrow and that Jaegwon Kim was right to criticize it for not having a normative element. **Our concept of completeness concerns much more than the supply side of the market for tools for helping us believe well. It concerns the supply and demand sides of the market for tools for helping us decide well.**”

was changed to:

“Consider the holism of W. V. O. Quine. **Our concept of completeness concerns the supply side of the market for tools for helping us believe well.** We see conflicts in our belief systems. *The philosophy of science is philosophy enough.* Now consider the **completeness** of the multiple-frame approach to deciding well. **Our concept of completeness concerns the supply and demand sides of the market for helping us decide well.** We see holes as well as conflicts in our belief systems. For example, we see that Morton White was right to criticize Quine’s philosophy for being too narrow and that Jaegwon Kim was right to criticize it for not having a normative element. *The science of science is philosophy enough if and only if science includes the interwoven pursuits of all boundless factors of deciding well.*”

Changes in Version 2012.06.30

Preface, first paragraph, first sentence

“In the fall quarter of 1978, I took **George Leland Bach’s MBA** course in ethics.”

was changed to:

“**In 1949, George Leland Bach became the founding dean of the Graduate School of Industrial Administration at the Carnegie Institute of Technology. He envisioned a school based on management science. Thirteen years later, he left what some have called the first modern school of management to take a job at Stanford University, where he**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

taught an undergraduate level course in economics and a graduate level course in ethical management. In the fall quarter of 1978, I took his course in ethics.”

Preface, fourth paragraph

Changed “process” to “process of finding and solving problems” and “new” to “more complete” in the last sentence.

Chapter 1, Values, last paragraph

Changed “models” to “models for helping us find problems to solve” in the last sentence.

Chapter 1, *Steps for Building Strategic Models*, first paragraph

Changed “models” to “models for helping us find problems to solve” in the first sentence.

Chapter 1, *Invariant Values*, first paragraph

Changed “decide ever more” to “live ever more” in the last sentence.

Chapter 2, Invariant Tools for Living Well, last paragraph, footnote

Deleted “, which is on the demand side” in the last sentence.

Chapter 2, *Tools for Pursuing Pleasure and Joy*, last paragraph

Changed “danger of” to “danger in” in the second sentence.

Chapter 3, Pursuing the Ring of Truth, second paragraph

Changed “models” to “models for helping us find problems to solve” in the first sentence.

Chapter 7, *Timeless OODA Loop Analysis*, first paragraph

Changed “scales” to “scales up to and including nations” in the last sentence.

Chapter 7, The Scope of Biological Evolution, first paragraph

Changed “seek” to “always seek” in the second sentence.

Chapter 7, The Scope of Biological Evolution, second paragraph

Changed “both slows” to “slows” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 7, The Scope of Biological Evolution, last paragraph

Changed “Hence, we” to “We” in the last sentence.

Chapter 8, Complete Reasoning, last paragraph

Changed “We” to “Together we” in the second sentence.

Chapter 8, Complete Reasoning, last paragraph, last footnote, second to last sentence

Changed “see” to “find” in the third and seventh sentences (2 occurrences).

Changed “Morton White was right to criticize Quine’s philosophy for being too narrow” to “Quine’s philosophy is too narrow (Morton White’s problem)” and “that Jaegwon Kim was right to criticize it for not having a normative element” to “that it lacks a normative element (Jaegwon Kim’s problem)” in the eighth sentence.

Chapter 8, Summary, first paragraph

Changed “disadvantage of” to “danger in” in the second sentence.

Changed “invariant values” to “values independent of beliefs and circumstances” in the fifth sentence.

Changed “timeless” to “invariant” in the last sentence.

Changes in Version 2012.07.06

Preface, first paragraph

Deleted “, where he taught an undergraduate level course in economics and a graduate level course in ethical management” from the third sentence.

Changed “course in ethics” to “MBA core course in ethical management” in the fourth sentence.

Preface, fourth paragraph

Changed “define and digest” to “define, decompose, and discard” in the last sentence.

Chapter 3, *Forward-Looking Science*, first paragraph

Changed “act” to “appear to act” in the fourth sentence (2 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Forward-Looking Science*, second paragraph

Changed “acting” to “appearing to act” in the seventh sentence (2 occurrences).

Chapter 3, *Forward-Looking Science*, third paragraph

Changed “acting” to “appearing to act” in the second sentence (2 occurrences).

Chapter 3, *The Elephant in the Room*, first paragraph

Changed “logic” to “logic are” in the last sentence.

Chapter 3, *The Elephant in the Room*, second paragraph

Changed “logic” to “logic are” in the last sentence.

Chapter 4, *Refining Everyday Thinking*, second paragraph

Changed “linking” to “the process of relating” in the second sentence.

Chapter 4, *Refining Everyday Thinking*, last paragraph

“The whole of science is nothing more than the endless process of refining everyday thinking. We may call this process *invariant science*.”

was changed to:

“We may call the endless process of refining everyday thinking *invariant science*.”

Chapter 4, *Recursivity*, first paragraph, end

Added the sentence:

“The models we use to describe the behavior of ants do not change what ants do, but the models we use to describe our behavior tend to change what we do.”

Chapter 4, *Refining Refining Everyday Thinking*, title

Changed title from “Refining Refining Everyday Thinking” to “Refining Invariant Science.”

Chapter 4, *Modern Macroeconomic Mistakes*, title

Changed title from “Modern Macroeconomic Mistakes” to “Modern Policy Mistakes.”

Chapter 4, *Academic Fields*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “prescription for” to “**description of and** prescription for” in the second sentence.

Chapter 5, *The Explicit Experiment*, second paragraph, footnote, last sentence

“**We can see** Franklin’s **continued belief in his great political experiment in his** famous reply to the woman who asked him what the secret meetings that we now call the Constitutional Convention produced: “A republic, if you can keep it.””

was changed to:

“Franklin’s famous reply to the woman who asked him what the secret meetings that we now call the Constitutional Convention produced (“A republic, if you can keep it.”) **rings true with the belief that Franklin made this crucial change.**”

Chapter 5, *Lower Trade Barriers*, first paragraph, footnote

Changed “technology” to “**high** technology” in the last sentence.

Chapter 6, *Experiencing Mystical Oneness*, last paragraph

Changed “**sacrifice safety or health in order to** conserve scarce resources” to “conserve scarce resources **by sacrificing safety or health**” in the first sentence.

Chapter 6, *A Common Timeless End*, second paragraph

“**From a materialist view, we become part of something infinitely larger than ourselves in order to live well. Linking well is subordinate to living well. From a dualist view, we live well in order to become part of something infinitely larger than ourselves. Living well is subordinate to linking well.** From both views, poverty may force us to choose between living well and linking well, between pursuing Happiness and pursuing Wholeness. Deciding well makes it ever less probable that we will need to make this choice. **Given that the emotions arising from our need for mystical oneness can easily overwhelm our reason, we ought to err on the side of living well.**”

were changed to:

“**Although the creation of a frame for linking well helps us better understand living well, it does not tell us whether we ought to link well in order to live well or live well in order to link well.** From both views, poverty may force us to choose between living well and linking well, between pursuing Happiness and pursuing Wholeness. Deciding well makes it ever less probable that we will need to make this choice.”

Chapter 6, *A Common Timeless End*, last paragraph, first sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From a logical view, the belief that linking well **is subordinate** to living well conflicts with the belief that living well **is subordinate** to linking well.”

was changed to:

“From a logical view, the belief that **we ought to link well in order** to live well conflicts with the belief that **we ought to live well in order** to link well.”

Chapter 7, The Scope of Biological Evolution, second paragraph, last two sentences

“**Modern views of biological evolution tend to blind us to better ways of living well. Further,** applying the tools of the true sciences to the public sciences ignores the two-way relation between the world and our beliefs about the world. Ignoring this two-way relation slows progress and worsens turbulence.”

were changed to:

“**A**pplying the tools of the true sciences to the public sciences ignores the two-way relation between the world and our beliefs about the world. Ignoring this two-way relation slows progress and worsens turbulence.”

Chapter 8, Beautiful Reason, fifth paragraph

Changed “frames” to “**coherent sets of frames**” in the last sentence.

Chapter 8, Complete Reason, last paragraph, second sentence

“**We** ought to **collectively** pursue the Truth using **a set of all not yet discarded** rules for pursuing the Truth **that contains a complete subset of** rules for refining **this** set of rules **including itself.**”

was changed to:

“**Individually, we ought to pursue the Truth based on the rules that ring true with what we currently know about pursuing the Truth. Collectively, we ought to collectively pursue the Truth using the set of all possible rules for pursuing the Truth, which includes all possible rules for refining the set of all possible rules for pursuing the Truth.**”

Chapter 8, Complete Reason, last paragraph

Changed “complete **for us**” to “complete” in the second to last sentence.

Chapter 8, Complete Reason, last paragraph, second footnote

Changed “**create**” to “**discover or invent**” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Complete Reason, last paragraph, second footnote, third sentence

“Raffaello Sanzio da Urbino called it *inspiration* (Columbia University Art Humanities Series lecture *The School of Athens* <<http://www.youtube.com/watch?v=uOrG6jfBzEU>> 22 June 2012).”

was changed to:

“Others have called it *inspiration*.”

Chapter 8, Complete Reason, last paragraph, last footnote

Changed “. For example” to “, e.g.” in the sixth and seventh sentences.

Changes in Version 2012.07.07

Changes in response to edit of preface and first chapter by Patrika Vaughn.

Preface, first paragraph

Inserted paragraph break after the fifth sentence.

Preface, new third paragraph, second sentence

“They confuse taking the next step toward seeking the truth and taking the next step toward seeking wisdom with seeking the truth and wisdom.”

was changed to:

“They conflate the temporal and the timeless. In pursuing the truth, they confuse taking the next step toward seeking the truth with seeking the truth. In pursuing wisdom, they confuse taking the next step toward seeking wisdom with seeking wisdom.”

Preface, new sixth paragraph

Deleted “which is the view of believing well ever more wisely,” from the third sentence.

Chapter 1, Setting Words Aright, last paragraph, first two sentences

“Deciding ever more wisely calls for distinguishing between terms and concepts, between containers for meaning and meanings. This book uses the convention of surrounding terms with single quotation marks and concepts with double quotation marks.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“Deciding ever more wisely calls for distinguishing between **concepts and** terms, between **meanings and** containers for meaning. This book uses the convention of surrounding **concepts with double quotation marks and** terms with single quotation marks.”

Changes in Version 2012.07.12

Preface, second to last paragraph

Changed “**redefining**” to “**expanding the scope of**” in the last sentence.

Chapter 3, *Public Entropy*, end

Added the following paragraph:

“**Reasonably complete reasoning concerns not only the rules we use to bind beliefs together into coherent models of the world, but also the rules we use to bind these models together into a coherent whole. It is alien to modern science, but not to modern art. In the movie based on Carl Sagan’s novel *Contact*, the person who discovered the primer for the alien plans explained the key insight that led to this discovery: “An alien intelligence is going to be more advanced and that means efficiency functioning on multiple levels and in multiple dimensions.” Such is the efficiency of pursuing the Truth.**”

Chapter 3, *The Elephant in the Room*, second paragraph

Deleted “, **which appears to be as indispensable to deciding well as mathematics and logic are**” from the last sentence.

Chapter 3, *The Elephant in the Room*, third paragraph

Deleted “, **which appears to be as indispensable to deciding well as mathematics and logic are**” from the last sentence.

Chapter 4, *Refining Everyday Thinking*, second paragraph and Venn diagram

Replaced subset subscript labels (1, 2, 3) with more descriptive labels (*d*, *p*, *e*).

Chapter 4, *Refining Everyday Thinking*, last four paragraphs

“We use descriptions of the world to predict **and explain**. A prediction is knowledge of what is apt to happen. **An explanation is knowledge of why things happen as they do.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Predictions and explanations help us in different ways. Predictions help us to assign probabilities to uncertain events, which helps us to evaluate alternatives. Explanations help us to understand how our actions may change the world, which helps us to formulate alternatives. Better predictions help us become more *efficient* and better explanations help us become more *effective*.

“We choose descriptions of the world to help us predict within our chosen problems (S_2). We also choose descriptions of the world to help us choose problems to solve (S_3). In both cases, choosing well is an art. It is a matter of judging the ring of truth based on what we currently know about the world. *Beauty plays a role not only in creating tools for helping us decide, but also in using these tools.*”

“We test the descriptions that we use to predict by how well they help us predict, and test the descriptions that we use to explain by how well they help us find problems to solve. The descriptions we use to explain may do nothing more than tell us that we cannot predict what we would like to predict. If we know that no one can predict the weather ten days from now, we ought to plan for more than smooth sailing.

“The whole of science is nothing more than the endless process of refining everyday thinking. We may call this process *invariant science*.”

were changed to:

“We use descriptions of the world to predict. A prediction is knowledge of what is apt to happen. Predictions help us to assign probabilities to uncertain events, which helps us to evaluate alternatives. We refine the descriptions that we use to predict by how well they help us predict. Members of the set of refined descriptions that help us predict (S_p) help us become more efficient.

“We also use descriptions of the world to explain the world. An explanation is knowledge of why things happen as they do. Explanations help us to understand how our actions may change the world, which helps us to formulate alternatives. We refine the descriptions that we use to explain by how well they help us find problems to solve. Members of the set of refined descriptions that help us explain (S_E) help us become more effective.”

Chapter 4, *Recursivity* and *Self-Similarity* subsections

Switched order of these two subsections. Removed italics from the second to last sentence in the last paragraph of the *Recursivity* subsection.

Chapter 4, *Academic Fields*, end

Added the one sentence paragraph:

“*Invariant science* would be the endless process of refining everyday thinking.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *A Strategy for Learning*, title

Changed title to “*Refining Deciding Well.*”

Chapter 4, *Academic Fields*, entire subsection.

Moved this subsection back to the end of Refining Everyday Thinking section (behind the *Self-Similarity* subsection).

Chapter 4, *Modern Policy Mistakes*, fourth paragraph

Changed “*From a multiple-frame view, we*” to “*We*” in the sixth sentence.

Chapter 4, *Modern Policy Mistakes*, fifth paragraph

Deleted “*deterministic chaotic and*” from the first sentence.

Changed ““*frozen accidents*”” to “*frozen accidents*” in the first sentence.

Chapter 8, Complete Reasoning, last paragraph, first footnote

“*Reasonably complete reasoning concerns not only the rules we use to bind beliefs together into coherent models of the world, but also the rules we use to bind these models together into a coherent whole. It is alien to modern science, but not to modern art. In the movie based on Carl Sagan’s novel Contact, the person who discovered the primer for the alien plans explained the key insight that led to this discovery: “An alien intelligence is going to be more advanced and that means efficiency functioning on multiple levels and in multiple dimensions.” Such is the efficiency of pursuing the Truth.*”

was deleted.

Chapter 8, Complete Reasoning, last paragraph, last footnote

Changed “Quine” to “Quine’s *holistic approach to believing well*” in the first sentence.

Changed “*believe*” to “*believe*” in the second sentence.

Changed “*deciding*” to “*believing*” in the fifth sentence.

Changes in Version 2012.07.14

Acknowledgments, fifth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “ponder the many ways in which we cope with what we don’t know about what we don’t know” to “revisit the modern economic problem of learning” in the third sentence.

Changed “met” to “got to know” in the fourth sentence.

Chapter 3, *Forward-Looking Science*, fourth paragraph

Changed “a single decision tree” to “this universal problem’s decision-tree model” in the last sentence.

Chapter 4, *Academic Fields*, fourth paragraph

Changed “they” to “we” and “consciousness” to “our consciousness” in the last sentence.

Chapter 4, *Academic Fields*, fifth paragraph

Changed “sciences include” to “sciences would include” in the second sentence (2 occurrences).

Changes in Version 2012.07.17

Chapter 1, *Values*, fifth paragraph

Changed “discovery and exploration” to “exploration” in the fifth sentence.

Chapter 3, *Public Entropy*, second paragraph, footnote

Changed “beautiful” to “ambiguous” in the second and third sentences (2 occurrences).

Chapter 4, *Self-Similarity*, second paragraph

Changed “view” to “view of physics” in the fourth sentence.

Chapter 5, *The Explicit Experiment*, last paragraph

Changed “theistic rather than natural” to “theistic” in the fifth sentence.

Chapter 6, *Mystical Oneness*, second paragraph

Changed “union” to “union of self with the infinite Being” in the third sentence.

Changed “union of self with the infinite Being” to “union” in the fourth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Beautiful Reason, seventh paragraph, second through fourth sentences

“The logical approach to pursuing the Truth **does not use this technique**. The dialectical approach **can use it** to pursue a timeless end. The Reasonable approach **uses it** to pursue the timeless end of deciding well, which calls for using it to pursue boundless factors of deciding well.”

were changed to:

“**We cannot use this technique with** the logical approach to pursuing the Truth. **We can use it with** the dialectical approach to pursue a **single** timeless end. **We can also use it with** the Reasonable approach to pursue the timeless end of deciding well, which calls for using it to pursue boundless factors of deciding well.”

Chapter 8, Summary, first paragraph

Changed “in physics” to “**in philosophy (the induction problem) and in physics**” in the second sentence.

Chapter 8, Summary, last paragraph

Deleted the first sentence:

“**Perfection of means and confusion of ends seem to characterize our age.**”

Merged the paragraph to the first paragraph.

Appendix A, Producing Ever More Wisely, first paragraph

Changed “**Toyota’s kaizen**” to “**Taiichi Ohno’s**” in the last sentence.

Changes in Version 2012.07.20

Acknowledgments, fourth paragraph

Changed “lecture” to “lecture **in Chicago**” and “**Japanese** factories practicing just-in-time manufacturing” to “factories practicing just-in-time manufacturing **in Japan**” in the last sentence.

Acknowledgments, fifth paragraph

Changed “**got to know**” to “**made friends with**” in the fourth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed ““from the heart” for the *Harvard Business Review/Economist* magazine audience.” to ““from the heart.”” in the sixth sentence.

Preface, first paragraph

Changed “**Thirteen years later**” to “**In 1962**” and “school of management to take a job” to “**business** school to take a **teaching** job” in the second sentence.

Changed “fall **quarter**” to “fall” in the third sentence.

Chapter 4, *Academic Fields*, fourth paragraph

Changed “**our** consciousness from the study of quantum mechanics” to “consciousness from the study of quantum mechanics, **hence would see more clearly such things as the conflict between the absolute time of quantum mechanics (entangled states of the world) and the relativistic time of Einstein’s theory of invariance**” in the last sentence.

Chapter 7, *A Normal Anomaly*, last paragraph

Changed “deck” to “**standard** deck” in the last sentence.

Chapter 7, *An Extraordinary Anomaly*, first paragraph

Changed “**world** (universe)” to “universe” in the last sentence.

Chapter 7, *Temporal OODA Loop Analysis*, title

Deleted “*Temporal*” from the title.

Chapter 7, *Temporal OODA Loop Analysis*, first two paragraphs

“**In 1975, Boyd** retired from the Air Force as a full colonel. He planned to refine his ideas about combat and develop his ideas about how and why people learn. Fellow defense reformer Pierre Sprey encouraged him to develop his ideas on maneuver warfare. Given his great ability to relate ideas, Boyd saw how each of these three issues fitted into the larger problem of how best to decide well more quickly than competitors.

“**Boyd** grasped that deciding well was a self-similar process based on a decision cycle. In his decision cycle, we observe the world, orient ourselves in the world, decide on a course of action, and act. **Boyd** called this observe–orient–decide–act decision cycle an *OODA loop*.”

were changed to:

“**After** retiring from the Air Force **in 1975, Boyd** grasped that deciding well was a self-similar process based on a decision cycle. In his decision cycle, we observe the world,

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

orient ourselves in the world, decide on a course of action, and act. He called this observe–orient–decide–act decision cycle an *OODA loop*.”

Chapter 7, *Timeless OODA Loop Analysis*, title

Deleted title. Merged subsection into the prior subsection.

Chapter 7, *OODA Loop Analysis*, last paragraph, footnote, last three sentences

“Boyd’s strategy involved breaking down Saddam Hussein’s “moral–mental–physical capacity to adapt or endure.” Among other things, this involved creating the cognitive dissonance experienced by the subjects of Bruner and Postman’s experiment. Boyd learned of this experiment from Kuhn’s description of it in *The Structure of Scientific Revolutions*.”

were inserted after the first sentence of the paragraph in the paragraph and changed to:

“This strategy involved breaking down Saddam Hussein’s “moral–mental–physical capacity to adapt or endure” by creating the cognitive dissonance experienced by the subjects of Bruner and Postman’s experiment.”

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote

Changed “evolution” to “biological evolution” in the third sentence.

Changes in Version 2012.07.26

Preface, first paragraph

Changed “George” to “University of Chicago trained-economist George” in the first sentence.

Chapter 1, *Useful Frames*, first paragraph, third through last sentences

“Some ends concern processes. Because processes have no bounds in time, we may call these *timeless ends*. Playing basketball well is a timeless end. Other ends concern events. Because events have bounds in time, we may call these *temporal ends*. Winning a basketball game is a temporal end. In pursuing the timeless end of deciding well, we need frames to help us find problems to solve. We may call these *timeless frames*. We also need frames to help us solve problems that have temporal ends. We may call these *temporal frames*.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Some ends concern events. Because events have bounds in time, we may call these *temporal ends*. Winning a basketball game is a temporal end. **Other ends concern processes. Because processes have no bounds in time, we may call these *timeless ends*. Playing basketball well is a timeless end.** In pursuing the timeless end of deciding well, we need frames to help us solve problems that have temporal ends. We may call these *temporal frames*. **We also need frames to help us find problems to solve. We may call these *timeless frames*.**”

Chapter 2, Invariant Tools for Living Well, second paragraph, footnote

Removed all italics from the footnote.

Chapter 5, *The Explicit Experiment*, fourth paragraph, last footnote, end

Added the sentences:

“Holmes was the least idealistic member of the first generation of what we now call the pragmatic school of philosophy. For more on this, read Louis Menand’s *The Metaphysical Club* (New York: Farrar, Straus and Giroux, 2002).”

Chapter 6, A Common Timeless End, second paragraph

“**Although the creation of** a frame for linking well helps us better understand living well, it does not tell us whether we ought to link well in order to live well or live well in order to link well. **From both views, poverty may force us to choose between living well and linking well, between pursuing Happiness and pursuing Wholeness.** Deciding well makes it ever less probable that we will need to **make this choice.**”

was changed to:

“**However useful** creating a frame for linking well may be in helping us better understand living well, it does not tell us whether we ought to link well in order to live well or live well in order to link well. **As a practical matter, we only need to choose between these two when we lack the resources to pursue both living well and linking well. Pursuing the timeless end of deciding well provides us with the resources to pursue both living well and linking well.** Deciding well makes it ever less probable that we will need to **choose between living well and linking well.**”

Chapter 7, *OODA Loop Analysis*, last paragraph

Changed “**cognitive** dissonance” to “dissonance” in the second sentence.

Chapter 8, Beautiful Reason, third paragraph

Changed “**completely** unambiguous” to “unambiguous” in the fourth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Beautiful Reason, fifth paragraph, footnote

Changed “**its** roots” to “roots” in the second sentence.

Chapter 8, Beautiful Reason, seventh paragraph

“We can imagine finessing this problem of never knowing the Truth by using a programming technique that searches the set of all possible algorithms for superior algorithms by selecting and “breeding” algorithms based on their fitness in pursuing timeless ends. We cannot use this technique with the logical approach. We can use it with the dialectical approach to pursue a single timeless end. We can also use it with the Reasonable approach to pursue the timeless end of deciding well, which calls for using it to pursue boundless factors of deciding well. Although the Reasonable approach may appear to be the best for pursuing the Truth, proving that it is the best still calls for knowing the Truth. However useful this finesse may appear to be in pursuing the Truth, it is not useful in helping us formally prove which form of reason is best for pursuing the Truth.”

was reduced to a footnote of the sixth paragraph.

Chapter 8, Complete Reason, second paragraph, first footnote

Changed “**discover or invent**” to “**find and choose**” in the first sentence.

Changes in Version 2012.07.30

Acknowledgments, fifth paragraph

Changed ““from the heart.”” to ““from the heart” **about learning in economics**” in the sixth sentence.

Chapter 1, Values, sixth paragraph, footnote, last sentence

“**For more about these two approaches to language, see the last chapter.**”

was deleted.

Chapter 3, Public Entropy, last paragraph

“The reasoning underlying this approach concerns not only the rules we use to bind beliefs together into coherent models of the world, but also the rules we use to bind these models together into a coherent whole. Such reasoning is alien to modern science, but not to modern art. In the movie based on Carl Sagan’s novel *Contact*, the person who discovered the primer for the alien plans explained the key insight that led to this

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

discovery: “An alien intelligence is going to be more advanced and that means efficiency functioning on multiple levels and in multiple dimensions.” Such is the efficiency of pursuing Beauty.”

was moved to the end of the *Forward Looking Science* subsection and changed to:

“The reasoning underlying this approach **to pursuing the Truth** concerns not only the rules we use to bind beliefs together into coherent models of the world, but also the rules we use to bind these models together into a coherent whole. Such reasoning is alien to modern science, but not to modern art. In the movie based on Carl Sagan’s novel *Contact*, the person who discovered the primer for the alien plans explained the key insight that led to this discovery: “An alien intelligence is going to be more advanced and that means efficiency functioning on multiple levels and in multiple dimensions.” Such is the efficiency of pursuing Beauty.”

Chapter 4, Refining Invariant Science, first paragraph, fourth sentence

“**What remains is a set of precise models that we use to predict how people will decide.**”

was deleted.

Chapter 4, Refining Invariant Science, second paragraph, third sentence

“**What remains is a set of beautiful descriptions that we use to explain deciding well.**”

was deleted.

Chapter 5, *Promote Savings for Welfare*, second paragraph, footnote

“¹⁵ **Ideally, private charities would drive the government out of the welfare business. The government safety-net program, like a militia, would remain available for emergencies.**”

was deleted.

Chapter 7, *OODA Loop Analysis*, last paragraph

Changed “**Saddam Hussein’s**” to “**the enemy’s**” in the second sentence.

Chapter 8, title, quote

““1 The world is everything that is the case. ...
2 What is the case, the fact, is the existence of atomic facts. ...
7 Whereof one cannot speak, thereof one must be silent.”
— *Ludwig Wittgenstein*”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹ Wittgenstein, Ludwig *Tractatus Logico-Philosophicus* (New York, Cosimo Classics, 2010), principal propositions 1, 2, and 7. This is the C. K. Ogden translation, which is available online at Project Gutenberg, <<http://www.gutenberg.org/ebooks/5740>> (22 June 2012).”

was changed to:

“So if you look back at the history of the beginning of this century you’ll see papers by logicians studying the foundations of mathematics in which they had programming languages. Now you look back and you say this is clearly a programming language! If you look at Turing’s work, you see, of course, there’s a machine language. If you look at papers by Alonzo Church, you see the lambda calculus, which is a functional programming language. If you look at Gödel’s original paper, you see what to me looks like LISP. It’s very close to LISP. It begs to be rewritten in LISP.” — *Gregory Chaitin*”

“¹ Introductory remarks of a lecture given given by Gregory Chaitin at the Carnegie Melon University’s School of Computer Science on March 2, 2000. A video of this lecture is available online at <<http://www.youtube.com/watch?v=HLPO-RTFU2o>> (30 July 2012).”

Chapter 8, Beautiful Reason, fifth paragraph, footnote

“³ Students of Western thought may better understand the distinction between logic, dialectics, and Reason by studying Ludwig Wittgenstein’s conversion from a picture theory of language based on a temporal view of the world to an instrumental theory of language based on the timeless end of living well. What we now call received science, which has roots in Wittgenstein’s picture theory of language, helps us describe actual existence based on what we currently know. To decide well, we need not only to describe actual existence based on what we currently know, but also to describe the whole of potential existence based on all that we can ever know. We need not only bounded descriptions of existence to help us solve given problems, but also boundless descriptions of existence to help us find better problems to solve.”

was deleted.

Chapter 8, Beautiful Reason, sixth paragraph, first footnote

“⁴ The inspiration for this thought experiment was an observation that mathematician Gregory Chaitin made in the introductory remarks of a lecture he gave at the Carnegie Melon University’s School of Computer Science on March 2, 2000: “So if you look back at the history of the beginning of this century you’ll see papers by logicians studying the foundations of mathematics in which they had programming languages. Now you look back and you say this is clearly a programming language! If you look at Turing’s work, you see, of course, there’s a machine language. If you look at papers by Alonzo Church, you see the lambda calculus, which is a functional programming language. If you look at Gödel’s original paper, you see what to me looks like LISP. It’s very close to LISP. It

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

begs to be rewritten in LISP.” A video of this lecture is available online at <http://www.youtube.com/watch?v=HLPO-RTFU2o> (22 June 2012).”

was deleted.

Chapter 8, Beautiful Reason, sixth paragraph, footnote

Changed “**approach**” to “**thought experiment**” in the first sentence.

Chapter 8, Complete Reason, second paragraph, second and third sentences

“**Individually, we ought to pursue the Truth using the rules that ring true with all that we currently know about pursuing the Truth. Collectively**, we ought to pursue the Truth using the set of all possible rules for pursuing the Truth, which includes all possible rules for refining the set of all possible rules for pursuing the Truth.”

were changed to:

“**In theory**, we **collectively** ought to pursue the Truth using the set of all possible rules for pursuing the Truth, which includes all possible rules for refining the set of all possible rules for pursuing the Truth. We may call such a set of rules *reasonably complete*.”

Changes in Version 2012.08.06

Chapter 1, Values, sixth paragraph, footnote, end

Added the sentence:

“**Received science (logical empiricism) has roots in this thoroughly temporal concept of language.**”

Chapter 3, *Forward-Looking Science*, first paragraph

Changed “**two** objects” to “objects” in the fifth sentence.

Chapter 3, *Forward-Looking Science*, second paragraph, third through last sentences

“**The first of these contains explanations that claim we should not waste resources trying to explain how quantum-level objects behave. We may call this the *Copenhagen class*. The second contains explanations that claim that we will be able to find hidden variables that explain how these objects behave. We may call this the *hidden-variables class*. The third contains explanations that claim** that every time one of these objects irreversibly transitions from appearing to act as a wave to appearing to act as a particle, the world

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

splits into a world in which the transition occurs and into another world in which it does not occur. Thus, everything that could have happened since the beginning of time has actually happened somewhere in the universe of worlds. *We may call this the many worlds class.*”

were changed to:

“*These are the Copenhagen class, the hidden variables class, and the many worlds class.*”

“*The defining characteristic of the Copenhagen class is the belief that we may know either the wave-like or the particle-like characteristics of objects on the quantum level, but that we can never know both. Hence, we will never be able to describe the behavior of these objects with certainty.*”

“*The defining characteristic of the hidden variables class is the belief that we will eventually be able to describe the behavior of these objects with certainty. This is to say that we lose nothing in reducing the whole into parts and that we do not have free will.*”

“*The defining belief of the many worlds class is that every time one of these objects irreversibly transitions from appearing to act as a wave to appearing to act as a particle, the world splits into a world in which the transition occurs and into another world in which it does not occur. Thus, everything that could have happened since the beginning of time has actually happened somewhere in the universe of worlds.*”

Changes in Version 2012.08.08

Acknowledgments, last paragraph

Changed “(1942–46)” to “(1942–6)” in the fourth sentence.

Chapter 1, Choosing Frames Well, first paragraph

Changed “*conceiving the world* (reducing our sensations of the world to concepts)” to “reducing our sensations of the world to concepts” in the last sentence.

Chapter 1, Choosing Frames Well, first paragraph

Changed “*conceive* the world” to “*reduce our sensations of the world to concepts*” in the first sentence.

Chapter 3, *Forward-Looking Science*, third paragraph

Changed “*The* defining *characteristic*” to “*A* defining *belief*”; “*characteristics*” to “*aspects*”; and “both” to “both *at the same time*” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Forward-Looking Science*, fourth paragraph

Changed “The defining characteristic” to “A defining belief” in the first sentence.

Changed “This is to say” to “Hence,” and “that we” to “we” in the last sentence.

Chapter 3, *Forward-Looking Science*, fifth paragraph

Changed “The” to “A” and “that” to “the belief that” in the first sentence.

Changed “Thus” to “Hence” in the last sentence.

Chapter 3, *Forward-Looking Science*, seventh paragraph

Changed “ideal models” to “models” in the first sentence.

Chapter 7, *The Scope of Game Theory*, first paragraph

Changed “cooperate (C) or defect (D)” to “cooperate or defect” in the last sentence.

Chapter 7, *A Normal Anomaly*, first paragraph, block quote

Changed “D” to “D [defect]” and “C” to “C [cooperate]” in the second sentence.

Chapter 7, *E-M Theory*, first paragraph

Changed “manual on aerial combat eventually used by air forces around the world” to “widely-used manual on aerial combat” in the third sentence.

Chapter 7, *OODA Loop Analysis*, third paragraph

Changed “next” to “later” in the first sentence.

Chapter 8, *Complete Reason*, last paragraph, first footnote, second and third sentences

“Kurt Gödel called this mysterious element *intuition*. Others have called it *inspiration*.”

were deleted.

Changes in Version 2012.08.18

Chapter 3, *Public Entropy*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “wealth” to “resources” in the third sentence.

Chapter 8, Summary, first paragraph, last paragraph

“We shall not grow wiser before we learn that much that we have done was very foolish.”

was deleted.

Changes in Version 2012.08.25

Chapter 7, The Scope of Biological Evolution, last paragraph, end

Added the sentences:

“If we are trying to solve a given problem, we ought to choose whichever level of biological evolution best helps us predict within the bounds of our problem, whether it be on the level of the organism, the gene, or the collective (colony or society). On the other hand, if we are trying to find a problem to solve, we ought to choose the explanation that best helps us pursue the timeless end of deciding well.”

Chapter 8, Beautiful Reason, sixth paragraph, footnote

Changed “a programming technique” to “an object-oriented (as opposed to procedural) programming technique” in the first sentence.

Changes in Version 2012.08.28

Chapter 7, The Scope of Biological Evolution, last paragraph, end

Added the paragraphs:

“All living beings seek to order their (internal and external) environment to suit their needs. They do so by taking order into their environment and by discarding disorder from it. For the world as a whole, the amount of order decreases over time. Hence, the source of order that makes life as we know it possible is the order at the beginning of the world. The odds against our world being as ordered as it appears to have been in the beginning are in the realm that mathematicians consider to be practically infinite.¹⁷”

“From an atheistic view, we were very lucky to have been born into a world conducive to life. From a theistic view, we were very lucky to have been born into a world created to be conducive to life. From the multiple-frame view, we may never know for certain

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

whether the world was created. However, we can know for certain that we ought to pay for the privilege of being born into a world conducive to living our life well by paying forward the debt we owe to the living beings that made possible living our life well. We best do so by pursuing the transcendental end of zero public entropy.”

“¹⁷ Mathematician Roger Penrose estimated the odds against our universe being as ordered as it appears to have been at the big bang to be at least ten-to-the-ten-to-the one-hundred-and-twenty-third power to one against. He made this estimate in a lecture titled “Before the Big Bang? A New Perspective on the Weyl Curvature Hypothesis” to the Newton Institute at Oxford University on November 7th, 2006. A video of this lecture is available online at

<<http://www.newton.ac.uk/webseminars/pg+ws/2005/gmr/gmrw04/1107/penrose/index.html>> (28 August 2012).”

Changes in Version 2012.08.30

Chapter 2, *Chicago Screwdrivers*, first paragraph, end

Added the footnote:

“⁴ Note the similarities between this distinction and Milton Friedman’s distinction between positive and normative science (*Essays in Positive Economics*, Chicago: University of Chicago Press, 1953). Communication across frames is only partial. The distinction between theories that describe the world as it is (positive theories) and theories that prescribe the world as it ought to be (normative theories) is not the same as the distinction between theories that describe the world as it is (temporal theories) and theories that describe the world as it is in the process of becoming (timeless theories). Hidden in theories that describe the world as it is in the process of becoming is a description of a prescriptive program, which is that living things are programmed to pursue the timeless end of living well. Biologists call this a teleonomic program.”

Chapter 4, *Refining Deciding Well*, second paragraph

Changed “theories” to “models” in the second sentence.

Chapter 6, *A Common Timeless End*, second paragraph

Changed “or link” to “or to link” in the first sentence.

Chapter 7, *An Extraordinary Anomaly*, last paragraph, end

Added the paragraph:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Deciding well calls for all of us to decide like fully human beings; hence to judge actions by invariant values and people by the content of their character as revealed by their actions.”

Chapter 7, The Scope of Biological Evolution, last paragraph

“From an atheistic view, we were very lucky to have been born into a world conducive to life. From a theistic view, we were very lucky to have been born into a world created to be conducive to life. From the multiple-frame view, we may never know for certain whether the world was created. However, we can know for certain that we ought to pay for the privilege of being born into a world conducive to living our life well by paying forward the debt we owe to the living beings that made possible living our life well. We best do so by pursuing the transcendental end of zero public entropy.”

was changed to:

“From a theistic view, we were very lucky to have been born into a world created to be conducive to life. From an atheistic view, we were very lucky to have been born into a world conducive to life. From the multiple-frame view, we may never know for certain whether our world was created, one of a practically infinite number of accidental worlds, or something else. However, we can know with great certainty that we ought to pay for the privilege of being born into a world conducive to living our life well by paying forward the debt we owe to the living beings that made possible living our life well. We best do so by pursuing the timeless end of zero public entropy.”

Chapter 8, Beautiful Reason, sixth paragraph, footnote

Changed “an object-oriented (as opposed to procedural) programming technique” back to “a programming technique” in the first sentence.

Chapter 8, Complete Reason, last paragraph, first footnote

“At the heart of reason is a mystery that concerns how we find and choose ever better tools for reasoning (concepts, rules, and arguments). Regardless of our personal beliefs about the nature of this element, defining our ignorance ever more completely can help us reason ever more wisely. Appendix B of the final version of this work will explain how to explain this mysterious element ever more wisely.”

was deleted.

Changes in Version 2012.09.12

Preface, end

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Added the paragraph:

“To decide well, we need not only to describe actual existence based on what we currently know, but also to describe the whole of potential existence based on all that we can ever know. We need not only bounded descriptions of existence to help us solve given problems, but also boundless descriptions of existence to help us find better problems to solve. The complex approach to deciding well put forth in this work provides us with not only bounded descriptions of existence to help us solve given problems, but also with coherent sets of boundless descriptions of existence to help us find better problems to solve. These coherent sets concern the world not as it currently is, but rather as it is in the process of becoming. They concern not the world as we find it, but rather the world as we may form it.”

Chapter 1, Values, fifth paragraph

Changed “Europeans” to “the English” in the fourth sentence.

Changed “Europeans” to “the English” in the fifth sentence.

Changed “Europeans” to “English” in the tenth sentence.

Chapter 2, *Chicago Screwdrivers*, first paragraph, footnote, first three sentences

“Note the similarities between this distinction and Milton Friedman’s distinction between positive and normative science (*Essays in Positive Economics*, Chicago: University of Chicago Press, 1953). Communication across frames is only partial. The distinction between theories that describe the world as it is (positive theories) and theories that prescribe the world as it ought to be (normative theories) is not the same as the distinction between theories that describe the world as it is (temporal theories) and theories that describe the world as it is in the process of becoming (timeless theories).”

were changed to:

“Communication across frames is only partial. The distinction between theories that describe the world as it is (positive theories) and theories that prescribe the world as it ought to be (normative theories) as described by Milton Friedman in his book *Essays in Positive Economics* (Chicago: University of Chicago Press, 1953) is not the same as the distinction between theories that describe the world as it is (temporal theories) and theories that describe the world as it is in the process of becoming (timeless theories).”

Chapter 3, *Forward-Looking Science*, third through fifth paragraphs

Changed “defining belief” to “defining feature” in the first sentence of all three paragraphs (3 occurrences).

Chapter 5, *Pursue Invariant, not Temporal Order*, first paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“For example, the best monetary policy is the one that best helps us to decide well. If a government has chosen a central banking system, central bankers should promote deciding well over macroeconomic stability in all but the direst of circumstances. Central bankers face two major choices. They must choose whether to control the supply or the price of money. They must also choose whether to act with or without warning. Of the four policies created by these two choices, the one that is least harmful to deciding well is to control the money supply by means of actions declared far in advance. Central bankers should neither bury the problems that disrupt the smooth flow of resources, nor shield the people best able to address these problems.”

was promoted to the body of the text and changed to:

“To counter this, central bankers should promote deciding well over macroeconomic stability in all but the direst of circumstances. They should neither bury the problems that disrupt the smooth flow of resources, nor shield the people best able to address these problems.”

Chapter 7, The Scope of Biological Evolution, third paragraph

“As intelligent beings bound to live well in the flow of time, we ought to describe the world in ways that are most useful to intelligent beings bound to live well in the flow of time. We ought to take a boundless view of biological evolution. If we are trying to solve a given problem, we ought to choose whichever level of biological evolution best helps us predict within the bounds of our problem, whether it be on the level of the organism, the gene, or the collective (colony or society). On the other hand, if we are trying to find a problem to solve, we ought to choose the explanation that best helps us pursue the timeless end of deciding well.”

was appended to the previous paragraph and changed to:

“As intelligent beings bound to live well in the flow of time, we ought to describe the world in ways that are most useful to intelligent beings bound to live well in the flow of time. We ought to take a boundless view of biological evolution.”

Chapter 7, The Scope of Biological Evolution, last paragraph

Changed “very lucky” to “lucky” in the first sentence.

Changed “very lucky” to “extremely lucky” in the second sentence.

Chapter 8, Beautiful Reason, fourth paragraph, end

Added the footnote:

“² More accurately, these are *the rules of modern dialectics*. In Plato’s early-to-middle transitional dialogue *Protagoras*, Socrates argues for the unity of the virtues, an idea

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

beautifully captured by Raffaello Sanzio following Tommaso Inghirami's program for the decoration for the study housing the library of Pope Julius II. Appendix B of the published version of this work will discuss how most modern art historians missed the forest for the trees."

Changes in Version 2012.09.14

Preface, last paragraph

"To decide well, we need not only to describe actual existence based on what we currently know, but also to describe the whole of potential existence based on all that we can ever know. We need not only bounded descriptions of existence to help us solve given problems, but also boundless descriptions of existence to help us find better problems to solve. The complex approach to deciding well put forth in this work provides us with not only bounded descriptions of existence to help us solve given problems, but also with coherent sets of boundless descriptions of existence to help us find better problems to solve. These coherent sets concern the world not as it currently is, but rather as it is in the process of becoming. They concern not the world as we find it, but rather the world as we may form it."

was inserted between the sixth and seventh paragraphs of the *Forward-Looking Science* subsection of the third chapter and changed to:

"To decide well, we need not only bounded descriptions of existence to help us solve given problems, but also boundless descriptions of existence to help us find better problems to solve. The complex approach to deciding well put forth in this work provides us with not only bounded descriptions of existence to help us solve given problems, but also with coherent sets of boundless descriptions of existence to help us find better problems to solve. These coherent sets concern the world not as it currently is, but rather as it is in the process of becoming. They concern not the world as we find it, but rather the world as we may form it."

Chapter 2, Chicago Screwdrivers, first paragraph, footnote

"⁴ Communication across frames is only partial. The distinction between theories that describe the world as it is (positive theories) and theories that prescribe the world as it ought to be (normative theories) as described by Milton Friedman in his book *Essays in Positive Economics* (Chicago: University of Chicago Press, 1953) is not the same as the distinction between theories that describe the world as it is (temporal theories) and theories that describe the world as it is in the process of becoming (timeless theories). Hidden in theories that describe the world as it is in the process of becoming is a description of a prescriptive program, which is that living things are programmed to pursue the timeless end of living well. Biologists call this a teleonomic program."

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted. (This footnote largely duplicates the second footnote.)

Chapter 7, The Scope of Biological Evolution, second paragraph, fourth and fifth sentences

“Applying the tools of the true sciences to the public sciences ignores the two-way relation between the world and our beliefs about the world. Ignoring this two-way relation slows progress and worsens turbulence.”

were deleted.

Chapter 7, The Scope of Biological Evolution, last paragraph

Changed “timeless” to “transcendental” in the last sentence.

Inserted the following sentence before the last sentence:

“We best do so by deciding well using the multiple-frame approach to deciding well.”

Chapter 8, Beautiful Reason, fifth paragraph, end

Added the footnote:

³ Reason, so conceived, helps us find not only conflicts but also holes in our belief systems. Consider the completeness of W. V. O. Quine’s holistic approach to believing well. Our concept of completeness concerns the supply side of the market for tools for helping us believe well. We find conflicts in our belief systems. *The philosophy of science is philosophy enough*. Now consider the completeness of the multiple-frame approach to believing well. Our concept of completeness concerns the supply and demand sides of the market for tools for helping us *decide* well. We find holes as well as conflicts in our belief systems, e.g., we see that Quine’s philosophy is too narrow (Morton White’s problem) and that it lacks a normative element (Jaegwon Kim’s problem). *The science of science is philosophy enough if and only if science includes all of the interwoven pursuits of the boundless factors of deciding well.*”

Chapter 8, Complete Reason, last paragraph, last sentence

“It helps us find not only conflicts but also holes in our belief systems.⁴”

⁴ Consider the completeness of W. V. O. Quine’s holistic approach to believing well. Our concept of completeness concerns the supply side of the market for tools for helping us believe well. We find conflicts in our belief systems. *The philosophy of science is philosophy enough*. Now consider the completeness of the multiple-frame approach to believing well. Our concept of completeness concerns the supply and demand sides of the market for tools for helping us *decide* well. We find holes as well as conflicts in our belief systems, e.g., we see that Quine’s philosophy is too narrow (Morton White’s

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

problem) and that it lacks a normative element (Jaegwon Kim's problem). *The science of science is philosophy enough if and only if science includes all of the interwoven pursuits of the boundless factors of deciding well.*"

was deleted.

Changes in Version 2012.09.15

Acknowledgments, fifth paragraph

Deleted "about learning in economics" from the sixth sentence.

Chapter 6, Experiencing Mystical Oneness, second paragraph

"Many dualistic religions claim that we need to experience mystical oneness during life in order to reach the ultimate end of Bliss, eternal mystical oneness with the infinite Being. From the multiple-frame view, the pursuits of these two ends both support each other and compete for scarce resources, especially for time."

was changed to:

Pursuing Eternal Oneness

Many dualistic religions claim that we need to experience mystical oneness during life in order to reach the ultimate end of Bliss, eternal mystical oneness with the infinite Being. From a logical view, pursuing eternal mystical oneness conflicts with pursuing the timeless end of living well. From the multiple-frame view, these two pursuits both support each other and compete for scarce resources, especially for time."

Chapter 6, Experiencing Mystical Oneness, last paragraph

Changed "Bliss" to "eternal mystical oneness" in the fourth sentence.

Deleted the footnote:

"From Maslow's view, healthy religions balance Dionysian and Apollonian means to religious experience. Maslow, Abraham H., *Religions, Values, and Peak Experiences* (New York: Viking, 1970), preface."

Chapter 7, OODA Loop Analysis, second paragraph, fourth and fifth sentences

"He concluded that F-86 pilots were able to overcome the E-M weaknesses of their airplanes by using tools that allowed them to decide faster than their opponents. These tools included bubble canopies, g-suits, and hydraulic controls."

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“He concluded that F-86 pilots were able to overcome the E-M weaknesses of their airplanes by using knowledge that allowed them to decide faster than their opponents. This **knowledge** was **in the form of such** tools as bubble canopies, g-suits, hydraulic controls, and better tactical rules. It was also in the form of tacit (intuitive) knowledge, which Boyd described using the German term ‘Fingerspitzengefühl’ (“feeling in the fingertips”).”

Chapter 8, Beautiful Reason, fourth paragraph, footnote, last sentence

“**Appendix B of the published version of this work will discuss how most** modern art historians missed the forest for the trees.”

was changed to:

“**Most modern art historians have missed the forest for the trees. They have missed the role that the unity of virtues plays in communicating holy wisdom, hence the role that octagons play in unifying this masterpiece.**”

Changes in Version 2012.09.18

Chapter 1, Values, fourth paragraph

Changed “**reasonably believe**” to “**formally prove**” in the last sentence.

Chapter 8, Beautiful Reason, fourth paragraph, footnote, last sentence

“They have missed the role that the unity of virtues plays in **communicating holy wisdom**, hence the role that octagons play in unifying this masterpiece.”

was changed to:

“They have missed the role that the unity of virtues plays in **discovering ever more complete forms of reason**, hence the role that octagons play in unifying this masterpiece. From the multiple-frame view, squares represent geometrical, mathematical, and logical reasoning; circles represent complete reasoning (Holy Wisdom); and octagons represent the beautiful reasoning of pursuing the boundless factors of deciding well. The most important octagon is the faux oculus at the center of the ceiling. Above this oculus, four putti hold up and another four tether down a symbol of the natural mission of discovering ever more Holy Wisdom. The next most important octagons are those intermixed with squares in the coffered barrel ceiling toward which Plato points. Beneath Plato and Aristotle’s feet, octagons both contain and are contained in squares. In pointing up, Plato tells us to aspire to a more refined form of the reasoning on which he and

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Aristotle stand. As an afterthought, Raffaello added a brooding Heraclitus, who both leans against and writes on a block of marble that may be the first in an octagonal successor to Donato Bramante's planned basilica. For more about this, see Appendix B of the published version of this work.”

Changes in Version 2012.09.22

Chapter 3, *Forward-Looking Science*, sixth paragraph, footnote

Changed “dialectics” to “modern dialectics” in the first sentence.

Chapter 8, *Beautiful Reason*, fourth paragraph

Changed “*the rules of dialectics*, after the dialectic” to “*the rules of modern dialectics*, after the modern interpretation of the” in the last sentence.

Chapter 8, *Beautiful Reason*, fourth paragraph, footnote, first four sentences

“More accurately, these are *the rules of modern dialectics*. In Plato's early-to-middle transitional dialogue *Protagoras*, Socrates argues for the unity of the virtues, an idea beautifully captured by Raffaello Sanzio following Tommaso Inghirami's program for the decoration for the study housing the library of Pope Julius II. Most modern art historians have missed the forest for the trees. They have missed the role that the unity of virtues plays in discovering ever more complete forms of reason, hence the role that octagons play in unifying this masterpiece.”

were changed to:

“Reason, so conceived, does not consider the unity of the virtues. In Plato's early-to-middle transitional dialogue *Protagoras*, Socrates argues for the unity of the virtues, an idea beautifully captured by Raffaello Sanzio in the decoration for the study housing the library of Pope Julius II. Most modern art historians have missed the role that the unity of virtues plays in discovering ever more complete forms of reason, hence the role that octagons play in unifying this masterpiece.”

Chapter 8, *Beautiful Reason*, fourth paragraph, footnote, second to last sentence

“As an afterthought, Raffaello added a brooding Heraclitus, who both leans against and writes on a block of marble that may be the first in an octagonal successor to Donato Bramante's planned basilica.”

was deleted.

Chapter 8, *Beautiful Reason*, fourth paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “this” to “this **architecture of knowledge**” in the last sentence.

Changes in Version 2012.09.24

Chapter 3, *Forward-Looking Science*, fourth paragraph, last sentence

“Hence, we **lose nothing in reducing the whole into parts and** we do not have free will.”

was changed to:

“Hence, we do not have free will. **Further, we can reduce the whole into parts. Hence, the hidden variables that explain what we currently perceive as entanglement are local.**”

Changes in Version 2012.09.26

Chapter 3, *Public Entropy*, last paragraph

Changed “**ever** fewer” to “fewer” in the last sentence.

Chapter 6, *Worldly Benefits of Detachment*, second paragraph, last four sentences

“Imagine a medical doctor at an airliner crash site performing triage. In choosing to be at the crash site doing triage, **she has** embraced the world. To do **her** best at this terrible task, **she** must detach **herself** from **her** work and the results of **her** work. **She** must act as if **she is** in this world but not of it.”

were changed to:

“Imagine **being** a medical doctor at an airliner crash site performing triage. In choosing to be at the crash site doing triage, we have embraced the world **and life**. To do **our** best at this terrible task, **we** must detach **ourselves** from **our** work and the results of **our** work. **We** must act as if **we are** in this world but not of it.”

Chapter 6, *A Common Timeless End*, second paragraph, second and third sentences

“As a practical matter, we only need to choose between **these two** when we lack the resources to pursue both **living well and linking well**. Pursuing the timeless end of deciding well provides us with the resources to pursue both **living well and linking well**.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“As a practical matter, we only need to choose between **living well and linking well** when we lack the resources to pursue both. Pursuing the timeless end of deciding well provides us with the resources to pursue both.”

Chapter 7, The Scope of Game Theory, first paragraph, footnote, end

Added the sentence:

“This book is a collection of essays from Hofstadter’s “Metamagical Themas” column in *Scientific American* magazine, which succeeded Martin Gardner’s long-running “Mathematical Games” column. ‘Metamagical themas’ is an anagram of ‘mathematical games.’”

Chapter 7, A Normal Anomaly, first paragraph, footnote, last two sentences

“Martin Gardner was author of the *Scientific American* Mathematical Games column, which preceded Hofstadter’s Metamagical Themas column. ‘Metamagical themas’ is an anagram of ‘mathematical games.’”

were deleted.

Chapter 7, OODA Loop Analysis, second paragraph

Changed “tacit (**intuitive**)” to “tacit” in the sixth sentence.

Chapter 7, The Scope of Biological Evolution, second paragraph, third sentence

Added the sentences:

“Further, recent discoveries show us that what happens to us may change not only how our genes work, but also how our descendants’ genes work. The line between genetic and cultural evolution is not distinct as most modern evolutionary biologists would have us believe.”

Changes in Version 2012.09.29

Chapter 1, Choosing Frames Well, first paragraph, third sentence

“Over time, we **reduce** ambiguity **within these structures**.”

was changed to:

“Over time, we **refine these structures by removing** ambiguity **from them**.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *The EOQ/RTS Example*, sixth paragraph

Changed “smoothly” to “efficiently” in the fifth sentence.

Chapter 7, *The Scope of Biological Evolution*, third paragraph

Changed “seek to order their (internal and external) environment” to “naturally seek to order their bodies and environments” in the fifth sentence.

Chapter 8, *Beautiful Reason*, fourth paragraph, footnote, last four sentences

“The most important octagon is the faux oculus at the center of the ceiling. Above this oculus, four putti hold up and another four tether down a symbol of the natural mission of discovering ever more Holy Wisdom. The next most important octagons are those intermixed with squares in the coffered barrel ceiling toward which Plato points. Beneath Plato and Aristotle’s feet, octagons both contain and are contained in squares. In pointing up, Plato tells us to aspire to a more refined form of the reasoning on which he and Aristotle stand. For more about this architecture of knowledge, see Appendix B of the published version of this work.”

were changed to:

“The most important octagon is the faux oculus at the center of the ceiling, which is formed by the composite of two Platonic theses, the timeless unity of virtues (circular scenes framed by grotesque borders linked by floral roundels) and the temporal elements (twin “hourglass” scenes from Greek myth and Roman history that represent earth, water, air and fire, which, together with the central octagon, form a Greek cross). Above this oculus, four putti hold up and another four tether down a circle containing a symbol of the papacy, a scene that represents the natural mission of discovering ever more about both Holy Wisdom (the timeless unity of the virtues) and the animating force of the world (the quintessential element). The next most important octagons are those intermixed with squares in the coffered barrel ceiling toward which Plato points. Beneath Plato and Aristotle’s feet, octagons both contain and are contained in squares. In pointing up, Plato tells us to aspire to a more refined form of the reasoning on which he and Aristotle stand. For more about this renaissance architecture of knowledge, see Appendix B of the published version of this work.”

Changes in Version 2012.10.10

Chapter 2, *Invariant Tools for Living Well*, last paragraph, footnote

³ Earlier versions of this work used the term ‘multiplex view,’ which came from biologist Jack Cohen and mathematician Ian Stewart’s book *Figments of Reality: The*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Evolution of the Curious Mind (Cambridge, England: Cambridge University Press, 1997), in which they describe the evolution of intelligence as a recursive process. Regrettably, they missed the symmetry of deciding well.”

was changed to:

“³ Earlier versions of this work used the term ‘multiplex view,’ which came from biologist Jack Cohen and mathematician Ian Stewart’s book about the co-evolution of minds and environments, *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997). Regrettably, the authors overlooked the way that the inexhaustibility of knowledge useful in living well creates symmetry in deciding well.”

Chapter 3, Pursuing the Ring of Truth, fourth paragraph

Changed “a coherent whole” to “an ever more coherent whole” in the second sentence.

Chapter 3, Contemplating the Way Forward, last two paragraphs

“Complete knowledge of some recursive objects will always transcend our knowledge of them. The mathematical constant π , which is the ratio of the circumference to the diameter of a Euclidean circle, is one such object. Many recursive processes will yield ever better approximations of π . We can use what we believe is the best of these processes to create a recursive program for producing ever better approximations of π . We may call the ever better approximates of π the *timeless end* of this program. The form of this end is a number. We may also call complete knowledge of π the *transcendental end* of this program. The form of this end is also a number.

“Wisdom, which is the knowledge that allows a being to decide perfectly, is another transcendental recursive object. Many recursive processes will yield ever better approximations of Wisdom. We can use what we believe is the best of these processes to create a recursive program for producing ever better approximations of Wisdom. We may call the ever better approximates of Wisdom the *timeless end* of this program. The form of this end is a set of partial descriptions of the world. These descriptions ought to be as simple as possible, but not simpler; and the set of descriptions ought to be as small as possible, but not smaller.² We may also call complete knowledge of Wisdom the *transcendental end* of this program. The form of this end is the most useful form for a perfectly wise being in deciding well.”

“² The inspiration for this belief about the need for economy in deciding well was Albert Einstein’s theory of knowledge: “Physical concepts are free creations of the human mind, and are not, however it may seem, uniquely determined by the external world. In our endeavor to understand reality we are somewhat like a man trying to understand the mechanism of a closed watch. He sees the face and the moving hands, even hears its ticking, but he has no way of opening the case. If he is ingenious he may form some picture of a mechanism which could be responsible for all the things he observes, but he

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

may never be quite sure his picture is the only one which could explain his observations. He will never be able to compare his picture with the real mechanism and he cannot even imagine the possibility or the meaning of such a comparison. But he certainly believes that, as his knowledge increases, his picture of reality will become simpler and simpler and will explain a wider and wider range of his sensuous impressions. He may also believe in the existence of the ideal limit of knowledge and that it is approached by the human mind. He may call this ideal limit the objective truth” (Einstein, Albert, *The Evolution of Physics: From Early Concepts to Relativity and Quanta*, New York: Simon and Schuster, 2008, p. 31).”

were changed to:

“Complete knowledge of some recursive objects will always transcend our knowledge of them. The mathematical constant π , which is the ratio of the circumference to the diameter of a Euclidean circle, is one such object. Many recursive processes will yield ever better approximations of π . We can use what we believe is the best of these processes to create a recursive program for producing ever better approximations of π . We may call the ever better approximates of π the *timeless end* of this program and complete knowledge of π the *transcendental end* of this program.

“Wisdom, which is the knowledge that allows a being to decide perfectly, is another transcendental recursive object. Many recursive processes will yield ever better approximations of Wisdom. We can use what we believe is the best of these processes to create a recursive program for producing ever better approximations of Wisdom. We may call the ever better approximates of Wisdom the timeless end of this program and complete knowledge of Wisdom the transcendental end of this program.”

Chapter 3, *Overcoming Constraints in Deciding Well*, first paragraph

“The process of computing the value of π as mathematicians define this process differs from the process of **deciding well in a profound way**. **The process of refining the process of computing the value of π is not part of the process of computing the value of π . In contrast, the process refining the process of deciding well is part of the process of deciding well**. Nevertheless, we can draw some conclusions about overcoming constraints in **deciding well** from the much simpler case of overcoming constraints in computing the value of π .”

was changed to:

“The process of computing the value of π as mathematicians define this process differs **profoundly** from the process of **pursuing Wisdom**.² Nevertheless, we can draw some conclusions about overcoming constraints in **pursuing Wisdom** from the much simpler case of overcoming constraints in computing the value of π **as mathematicians define this process**.”

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph, end

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Added the footnote:

“² We can never solve the problem of computing the value of π . In the words of Dwight Eisenhower, “If a problem cannot be solved, enlarge it.” We can enlarge the problem of computing the value of π by including the problem of choosing the best means of computing the value of π . In short, we change the problem from computing π to computing π well. From a modern view, this change takes us from the realm of mathematics to some higher, more arcane realm, e.g., metamathematics. From the multiple-frame view, it takes us from the realm of mathematics to the realm of science. We best address the problem of computing π (well) by pursuing the timeless end of deciding well. Following this line of thinking, there is little difference between computing the value of π and pursuing Wisdom. The timeless end of computing π (well) is a complex structure of knowledge rather than a simple number. Further, refining the process of computing the value of π (well) is part of the process of computing the value of π (well).”

Chapter 3, *Public Entropy*, first paragraph, footnote, last six sentences

“Note that public entropy concerns not only physical but also mental order. Deciding well is not only a matter of doing the right things, but also of doing them efficiently. Lowering the informational entropy of the sets of mental models that we use to do the right things is one way of increasing efficiency. Another is ensuring that we have only the knowledge each of us needs to decide well within our individual circumstances. In a world of ever-changing circumstances, each of us needs to know how to adapt well to ever-changing circumstances. Each of us needs to know the invariant strategy for deciding well.”

were deleted.

Chapter 3, *Public Entropy*, last paragraph

“We can use the concept of public entropy to help us find problems to solve. As we saw in the EOQ/RTS example, the concepts that we use to frame our problems tend to blind us to finding better problems to solve in pursuing timeless ends. We can overcome this blindness by removing ever more non-knowledge resources from the process of pursuing our chosen timeless end. Removing these resources creates problems. Solving these problems creates knowledge of how to pursue this end using fewer non-knowledge resources.”³

“⁵ In keeping with the self-referential theme of this work, we can use Ohno’s strategy for learning how to build vehicles ever more wisely as a metaphor for the invariant strategy for learning how to decide ever more wisely. Removing ambiguity from ambiguous links between beliefs is like removing work-in-process inventory from elastic links between production processes. At the limit of the former, ambiguous links become logical. At the limit of the latter, elastic links become rigid. The most obvious way to remove ambiguity

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

from this metaphor is to use the concept of entropy to reduce these two strategies to a common form.”

was changed to:

“Public entropy concerns not only the waste we use in acting, but also the waste we use in deciding how to act. In what we currently call the sciences, we ought to choose concepts that help us build clear and concise models of the world we sense. In Einstein’s words:

“Physical concepts are free creations of the human mind, and are not, however it may seem, uniquely determined by the external world. In our endeavor to understand reality we are somewhat like a man trying to understand the mechanism of a closed watch. He sees the face and the moving hands, even hears its ticking, but he has no way of opening the case. If he is ingenious he may form some picture of a mechanism which could be responsible for all the things he observes, but he may never be quite sure his picture is the only one which could explain his observations. He will never be able to compare his picture with the real mechanism and he cannot even imagine the possibility or the meaning of such a comparison. But he certainly believes that, as his knowledge increases, his picture of reality will become simpler and simpler and will explain a wider and wider range of his sensuous impressions. He may also believe in the existence of the ideal limit of knowledge and that it is approached by the human mind. He may call this ideal limit the objective truth.”⁵

“Extending this prescription to the whole of science, we ought to want a set of partial descriptions of the world, each member of which contains instructions for how we ought to use it. These descriptions and instructions ought to be as simple as possible, but not simpler; and the set of these descriptions and instructions ought to be as small as possible, but not smaller.

“In considering waste in managing the knowledge we use to decide how to act, we must consider waste not only in storing and transmitting information, but also in communicating and using it. In general, we do not communicate well. We do not tell all we need to tell to help others decide well. In turn, we do not hear all that we need to hear from others to decide well. Without adequate instructions about how to use partial descriptions of the world well, we tend to confuse these descriptions with reality. Too many of us think of atoms as little solar systems, of gravity as a centripetal force, and of wealth as consumer goods and the resources to produce consumer goods.

“We can use the concept of public entropy to help us see science not only as a source of partial descriptions of the world, but also as a means of linking these partial descriptions into an ever more coherent whole that we can use to find ever better problems to solve.⁶ We can begin by using this concept to relate the current basis of modern science, quantum mechanics, to deciding well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“⁵ Einstein, Albert, *The Evolution of Physics: From Early Concepts to Relativity and Quanta* (New York: Simon and Schuster, 2008), p. 31.”

“⁶ Removing ambiguity from ambiguous links between beliefs **in belief systems** is like removing work-in-process inventory from elastic links between production processes **in the Toyota production system**. At the limit of the former, ambiguous links become logical. At the limit of the latter, elastic links become rigid. **In both cases, we remove waste from the process of deciding well.**”

Chapter 3, *Forward-Looking Science*, first paragraph, first sentence

“**We can also use the concept of public entropy to relate the current basis of modern science, quantum mechanics, to deciding well.**”

was deleted.

Chapter 3, *Forward-Looking Science*, third paragraph

Changed “**Hence**” to “**Following this line of thinking**” in the last sentence.

Chapter 3, *Forward-Looking Science*, fourth paragraph

“A defining feature of the hidden variables class is the belief that we will eventually be able to describe the behavior of these objects with certainty. **Hence, we do not have free will. Further, we can reduce the whole into parts. Hence**, the hidden variables that explain what we currently perceive as entanglement are local.”

was changed to:

“A defining feature of the hidden variables class is the belief that we will eventually be able to describe the behavior of these objects with certainty, **which implies that** the hidden variables that explain what we currently perceive as entanglement are local. **Following this line of thinking, we do not have free will.**”

Chapter 3, *Forward-Looking Science*, fifth paragraph

Changed “**Hence**” to “**Following this line of thinking**” in the last sentence.

Chapter 3, *Forward-Looking Science*, sixth paragraph, footnote

“⁷ **As we shall also see, current reason is either too limiting (logic) or simple (modern dialectics) to help us think clearly about ideal paths forward, hence about the source of power-law distributions in the public sciences, especially those related to turbulence/catastrophes.**”

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Forward-Looking Science*, second to last paragraph

Changed “world” to “world, which includes our current uncertainty about the world” in the last sentence.

Chapter 3, *Forward-Looking Science*, last paragraph

“The reasoning underlying this approach to pursuing the Truth concerns not only the rules we use to bind beliefs together into coherent models of the world, but also the rules we use to bind these models together into a coherent whole. Such reasoning is alien to modern science, but not to modern art. In the movie based on Carl Sagan’s novel *Contact*, the person who discovered the primer for the alien plans explained the key insight that led to this discovery: “An alien intelligence is going to be more advanced and that means efficiency functioning on multiple levels and in multiple dimensions.” Such is the efficiency of pursuing Beauty.”

was moved behind the fifth paragraph of the Beautiful Reason section of the last chapter and changed to:

“The rules of Reason concern not only the rules we use to bind beliefs together into coherent models of the world, but also the rules we use to bind these models together into a coherent whole. Such reasoning is alien to modern science, but not to modern art. In the movie based on Carl Sagan’s novel *Contact*, the person who discovered the primer needed to understand the alien message explained the key insight that led to this discovery: “An alien intelligence is going to be more advanced and that means efficiency functioning on multiple levels and in multiple dimensions.” Such is the efficiency of pursuing Beauty.”

Chapter 4, *Academic Fields*, first paragraph

Changed “eighties” to “1980s” in the third sentence.

Chapter 5, *The Explicit Experiment*, second last paragraph, last footnote

Changed “on this” to “about this group” in the last sentence.

Chapter 8, Beautiful Reason, fourth paragraph, footnote

Changed “masterpiece” to “High Renaissance masterpiece” in the last sentence.

Changed “Plato points” to “Plato points in the fresco now known as *The School of Athens*” in the third to last sentence.

Changed “architecture” to “structure” in the last sentence.

Chapter 8, Beautiful Reason, new sixth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “timeless end of believing well (the Truth)” to “Truth” and “a coherent whole” to “an ever more coherent whole” in the first sentence.

Chapter 8, Complete Reason, both paragraphs

“We may call a set of rules for pursuing the Truth that contains all of the rules we need for pursuing the Truth *complete*. We can never prove a set of rules for pursuing the Truth to be both logically consistent and complete. Consider the following claims. First, for any set of rules for pursuing the Truth, we will either discover or never discover the Truth. Second, if we discover the Truth, we prove that the set of rules for pursuing the Truth is complete. Third, if we never discover the Truth, we never prove that the set of rules for pursuing the Truth is complete. Fourth, pursuing the Truth is an endless process. From these four claims, it follows that we can never prove a set of rules for pursuing the Truth to be both logically consistent and complete. If we discover the Truth, we prove false the claim that pursuing the Truth is an endless process. If we never discover the Truth, we never prove the set of rules is complete.

“The fact that we can never prove a set of rules for pursuing the Truth to be both logically consistent and complete does not mean that we ought not to pursue the Truth. In theory, we collectively ought to pursue the Truth using the set of all possible rules for pursuing the Truth, which includes all possible rules for refining the set of all possible rules for pursuing the Truth. We may call such a set of rules *reasonably complete*. So conceived, the reason of the multiple-frame approach to deciding well appears to be reasonably complete.”

were changed to:

“We may call a set of rules for pursuing the Truth that contains all of the rules we need for pursuing the Truth *complete*. We can never prove a set of rules for pursuing the Truth to be both logically consistent and complete.⁵ This does not mean that we ought not to pursue the Truth. In theory, we collectively ought to pursue the Truth using the set of all possible rules for pursuing the Truth, which includes all possible rules for refining the set of all possible rules for pursuing the Truth. We may call such a set of rules *reasonably complete*. So conceived, the rules of Reason appear to be reasonably complete.”

“⁵ Consider the following claims. First, for any set of rules for pursuing the Truth, we will either discover or never discover the Truth. Second, if we discover the Truth, we prove that the set of rules is complete. Third, if we never discover the Truth, we never prove that the set of rules is complete. Fourth, pursuing the Truth is an endless process. From these four claims, it follows that we can never prove a set of rules for pursuing the Truth to be both logically consistent and complete. If we discover the Truth, we prove false the claim that pursuing the Truth is an endless process. If we never discover the Truth, we never prove the set of rules is complete.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2012.10.20

Chapter 3, *Public Entropy*, second to last paragraph

“In considering waste in managing the knowledge we use to decide how to act, we must consider waste not only in storing and transmitting information, but also in communicating and using it. In general, we do not communicate well. We do not tell all we need to tell to help others decide well. In turn, we do not hear all that we need to hear from others to decide well. Without adequate instructions about how to use partial descriptions of the world well, we tend to confuse these descriptions with reality. Too many of us think of atoms as little solar systems, of gravity as a centripetal force, and of wealth as consumer goods and the resources to produce consumer goods.”

was reduced to a footnote and changed to:

“⁶ In considering waste in managing the knowledge we use to decide how to act, we must consider waste not only in storing and transmitting information, but also in communicating and using it. In general, we do not communicate well. We do not tell all we need to tell to help others decide well. In turn, we do not hear all that we need to hear from others to decide well. Without adequate instructions about how to use partial descriptions of the world well, we tend to confuse these descriptions with reality. Too many of us think of atoms as little solar systems, of gravity as a centripetal force, and of wealth as consumer goods and the resources to produce consumer goods. **For more about this, see Appendix B.**”

Chapter 3, *Public Entropy*, last paragraph

Changed “**the current basis of modern science**, quantum mechanics,” to “quantum mechanics” in the last sentence.

Added the following sentence to the end of the footnote: “**For more about inducing the creation of useful knowledge, see Appendix A.**”

Chapter 3, *Forward-Looking Science*, last paragraph

Changed “we know about the world, **which includes our current uncertainty about the world**” to “we know *and do not yet know* about the world” in the last sentence.

Chapter 4, *Recursivity*, last paragraph

Changed “*In addressing*” to “*When we address*” in the last sentence.

Chapter 5, *The Explicit Experiment*, last paragraph

Changed “non-**theistic**” to “non-**religious (temporal)**” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, Good Policies, first paragraph

“From the multiple-frame view, governing ourselves well **is a matter of** deciding well. **We are not able to express much useful knowledge. Only people closest to problems can use the knowledge that they are not able to express.** To use **this** knowledge, people closest to problems need to be free to decide what to do.”¹¹ The following aphoristic actions help policymakers govern free people well.”

“¹¹ Hayek, Friedrich A., “The Use of Knowledge in Society,” *American Economic Review*, Vol. 35, No. 4, Sept 1945, pp. 519–30, reprinted in *The Essence of Hayek* (Stanford: Hoover Institution Press, 1984), p. 211. For a deeper understanding of this issue, read the works of Michael Polanyi starting with *The Tacit Dimension* (Chicago: University of Chicago Press, 2009).”

was changed to:

“From the multiple-frame view, governing ourselves well **calls for** deciding well, **which in turn calls for sharing knowledge well. For a given stock of knowledge about how to share knowledge well, only people who have the useful knowledge that they cannot share can use this knowledge.** To use **such** “tacit” knowledge **well**, people closest to problems need to be free to decide what to do.”¹¹ The following aphoristic actions help policymakers govern free people well.”

“¹¹ **Modern economists and philosophers of science will recognize this as the tacit knowledge problem first described by Michael Polyani. Advances in our tools for telling well (e.g., expert systems, fractal geometry, and inexpensive information processing) have made much formerly untellable knowledge tellable. The question is increasingly not whether we can make currently untellable knowledge tellable, but whether it is currently wise to do so. For more about this, see Appendix B.**”

Chapter 7, OODA Loop Analysis, second paragraph

Changed “**tacit knowledge**” to “**experience**” in the sixth sentence.

Chapter 7, The Scope of Biological Evolution, third paragraph, footnote

Changed “**to the Newton Institute at Oxford University**” to “**at Oxford University’s Newton Institute**” in the last sentence.

Chapter 7, The Scope of Biological Evolution, last paragraph, last two sentences

“We best do so by **deciding well using the multiple-frame approach to deciding well. We best do so by** pursuing the transcendental end of zero public entropy.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We best do so by pursuing the transcendental end of zero public entropy, which calls for us to pursue the boundless factors of deciding well.”

Chapter 8, Beautiful Reason, fourth paragraph, footnote

² Reason, so conceived, does not consider the unity of the virtues. In Plato’s early-to-middle transitional dialogue *Protagoras*, Socrates argues for the unity of the virtues, an idea beautifully captured by Raffaello Sanzio in the decoration for the study housing the library of Pope Julius II. Most modern art historians have missed the role that the unity of virtues plays in discovering ever more complete forms of reason, hence the role that octagons play in unifying this High Renaissance masterpiece. From the multiple-frame view, squares represent geometrical, mathematical, and logical reasoning; circles represent complete reasoning (Holy Wisdom); and octagons represent the beautiful reasoning of pursuing the boundless factors of deciding well. The most important octagon is the faux oculus at the center of the ceiling, which is formed by the composite of two Platonic theses, the timeless unity of virtues (circular scenes framed by grotesque borders linked by floral roundels) and the temporal elements (twin “hourglass” scenes from Greek myth and Roman history that represent earth, water, air and fire, which, together with the central octagon, form a Greek cross). Above this oculus, four putti hold up and another four tether down a circle containing a symbol of the papacy, a scene that represents the natural mission of discovering ever more about both Holy Wisdom (the timeless unity of the virtues) and the animating force of the world (the quintessential element). The next most important octagons are those intermixed with squares in the coffered barrel ceiling toward which Plato points in the fresco now known as *The School of Athens*. Beneath Plato and Aristotle’s feet, octagons both contain and are contained in squares. In pointing up, Plato tells us to aspire to a more refined form of the reasoning on which he and Aristotle stand. For more about this renaissance structure of knowledge, see Appendix B of the published version of this work.”

was changed to:

² Reason, so conceived, does not consider the unity of the virtues. In Plato’s early-to-middle transitional dialogue *Protagoras*, Socrates argues for the unity of the virtues, an idea beautifully captured by Raffaello Sanzio in the decoration for the study housing the library of Pope Julius II. For more about this, see Appendix B.”

Appendix B

Added the online stub for Appendix B and associated links to it:

Telling Well

“Patterns change faster than thought.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

The published version of this work will include a three-part appendix that addresses the role of art in pursuing Wisdom. The first part defines this role. The second addresses the art of the *Stanza della Segnatura*. The last addresses the art of this work. What follows is a sample that concerns the long history of beautiful reasoning in Western thought.

Most modern art historians recognize the role of squares and circles in unifying the decoration of the *Stanza della Segnatura*. Few, if any, recognize the role of octagons. From the multiple-frame view, squares represent modern reason (geometry, mathematics, and logic); circles Wisdom; and octagons the reasoning of pursuing the boundless factors of deciding well.

The most important octagon is the faux oculus at the center of the ceiling, which is the result of combining the timeless pursuit of the unity of virtues (Holy Wisdom) and the four temporal elements.¹ Above this oculus, four putti hold up and another four putti tether down a circle containing a symbol of the papacy. This Tantalean image represents discovering ever more about not only Holy Wisdom, but also the timeless fifth element.

The next most important octagons are those intermixed with squares in the coffered barrel vault toward which Plato points in the fresco now known as *The School of Athens*.² Beneath Plato and Aristotle's feet, octagons both contain and are contained in squares. In pointing up, Plato tells us to aspire to a more refined form of the reasoning on which he and Aristotle stand.

¹ An image of the *Stanza della Segnatura* ceiling is available online at http://en.wikipedia.org/wiki/File:Raphael_-_Ceiling_of_the_Selling_Room.jpg (15 October 2012). To download this image, click anywhere on it. To enlarge the downloaded image, click anywhere on it. Use the scroll bars to navigate around the enlarged image. Click it again to return to the original downloaded image. The four circles containing women represent poetry, philosophy, justice, and theology. The four hourglass composites of scenes from Greek myth and Roman history represent earth, water, air and fire. Together with the central oculus, these four composites form a Greek cross.

² An image of the *The School of Athens* is available online at http://en.wikipedia.org/wiki/File:Sanzio_01.jpg (15 October 2012). To download this image, click anywhere on it. To enlarge the downloaded image, click anywhere on it. Use the scroll bars to navigate around the enlarged image. Click it again to return to the original downloaded image.

Changes in Version 2012.10.23

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix B, heading quote

““Patterns change faster than thought.””

was changed to:

““If you want to find out anything from the theoretical physicists about the methods they use, I advise you to stick closely to one principle: don’t listen to their words, fix your attention on their deeds. To him who is a discoverer in this field, the products of his imagination appear so necessary and natural that he regards them, and would like to have them regarded by others, not as creations of thought but as given realities.” — *Albert Einstein*”

“¹ Introductory remarks of a lecture titled “On the Methods of Theoretical Physics” given at Oxford University on June 10, 1933. Published in *Mein Weltbild* (Amsterdam: Querido Verlag, 1934).”

Changes in Version 2012.10.25

Chapter 8, Beautiful Reason, fifth paragraph, footnote

“³ Reason, so conceived, helps us find not only conflicts but also holes in our belief systems. Consider the completeness of W. V. O. Quine’s holistic approach to believing well. Our concept of completeness concerns the supply side of the market for tools for helping us believe well. We find conflicts in our belief systems. *The philosophy of science is philosophy enough*. Now consider the completeness of the multiple-frame approach to believing well. Our concept of completeness concerns the supply and demand sides of the market for tools for helping us *decide* well. We find holes as well as conflicts in our belief systems, e.g., we see that Quine’s philosophy is too narrow (Morton White’s problem) and that it lacks a normative element (Jaegwon Kim’s problem). *The science of science is philosophy enough if and only if science includes all of the interwoven pursuits of the boundless factors of deciding well.*”

was moved back to the end of the first paragraph of the Compete Reason section and changed to:

“⁵ Consider the completeness of W. V. O. Quine’s holistic approach to believing well. Our concept of completeness concerns the supply side of the market for tools for helping us believe well. We find conflicts in our belief systems. *The philosophy of science is philosophy enough*. Now consider the completeness of the multiple-frame approach to believing well. Our concept of completeness concerns the supply and demand sides of the market for tools for helping us *decide* well. We find holes as well as conflicts in our belief systems, e.g., we see that Quine’s philosophy is too narrow (Morton White’s problem) and that it lacks a normative element (Jaegwon Kim’s problem). *The science of*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

science is philosophy enough if and only if science includes all of the interwoven pursuits of the boundless factors of deciding well.”

This restores change made in 2012.09.14.

Changes in Version 2012.10.27

Acknowledgments, third paragraph

Changed “decision-making” to “making decisions” in the last sentence.

Chapter 1, Choosing Frames Well, third paragraph

Changed “but” to “and” in the fifth sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph, footnote

Changed “change” to “can change” in the third sentence.

Chapter 3, *Forward-Looking Science*, third paragraph

Changed “these” to “individual quantum-level” in the last sentence.

Chapter 3, *Forward-Looking Science*, first paragraph

Changed “common-sense” to “commonsense” in the fourth sentence.

Chapter 3, *Forward-Looking Science*, fourth paragraph

Changed “these” to “individual quantum-level” in the first sentence.

Chapter 3, *Forward-Looking Science*, sixth paragraph

Changed “quantum-level” to “quantum level” in the third sentence.

Chapter 5, *The Explicit Experiment*, last paragraph

Changed “and non-religious (temporal) through long” to “rather than religious through” in the second sentence.

Chapter 8, Beautiful Reason, fifth paragraph

“The rules of Reason concern not only the rules we use to bind beliefs together into coherent models of the world, but also the rules we use to bind these models together

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

into an ever more coherent whole. Such reasoning is alien to modern science, but not to modern art. In the movie based on Carl Sagan’s novel *Contact*, the person who discovered the primer needed to understand the alien message explained the key insight that led to this discovery: “An alien intelligence is going to be more advanced and that means efficiency functioning on multiple levels and in multiple dimensions.” Such is the efficiency of pursuing Beauty.”

was deleted.

Chapter 8, Beautiful Reason, new sixth paragraph, footnote

Changed “dialectical” to “modern dialectical” in the third sentence.

Changes in Version 2012.10.31

Appendix B, heading quote

““If you want to find out anything from the theoretical physicists about the methods they use, I advise you to stick closely to one principle: don’t listen to their words, fix your attention on their deeds. To him who is a discoverer in this field, the products of his imagination appear so necessary and natural that he regards them, and would like to have them regarded by others, not as creations of thought but as given realities.” — *Albert Einstein*”

¹ Introductory remarks of a lecture titled “On the Methods of Theoretical Physics” given at Oxford University on June 10, 1933. Published in *Mein Weltbild* (Amsterdam: Querido Verlag, 1934).”

was changed back to:

““Patterns change faster than thought.””

Changes in Version 2012.11.06

Chapter 1, Useful Frames, first paragraph

Changed “need frames” to “benefit from frames” in all (2 occurrences).

Chapter 4, *Modern Policy Mistakes*, fourth paragraph, last footnote

Deleted “and releases of stress from them follow a power law” from the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 6, A Common Timeless End, first paragraph

Changed “living well” to “living well **in terms of one another**” in the first sentence.

Appendix B, second paragraph, last sentence

“**Few, if any, recognize the role of octagons. From the multiple-frame view, squares represent modern reason (geometry, mathematics, and logic); circles Wisdom; and octagons the reasoning of pursuing the boundless factors of deciding well.**”

was deleted.

Appendix B, last paragraph

Changed “squares” to “squares, **which represent geometry, mathematics, and logic**” in the second sentence.

Changes in Version 2012.11.12

Chapter 1, last subsection

“**Invariant Values**”

An obvious benefit of this multiple-frame approach to deciding well, hereafter referred to simply as *the multiple-frame approach*, is that it allows us to use more of what we currently know about the world than any single-frame approach does.¹⁵ A less obvious benefit is that it extends the invariance of pursuing the timeless end of living well to pursuing all boundless factors of deciding well. Regardless of our current beliefs and circumstances, living well calls for deciding well, hence for pursuing all boundless factors of deciding well. To pursue other than these values is to blind ourselves to the full range of opportunities for learning to live ever more wisely.”

was changed to:

“**Beautiful Reason and Reasonable Beauty**”

From the view of this multiple-frame approach to deciding well, hereafter referred to simply as *the multiple-frame approach*, expanding the scope of the problems we face helps us find better problems to solve. When we expand the scope of these problems to the limits of imagination, a structure of values independent of beliefs and circumstances emerges. Understanding the process by which we best progress toward these invariant ends can help us progress ever more readily.¹⁵

“**The process by which we best progress towards these invariant ends involves distinguishing between the models we use to help us solve given problems, the best of**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

which are those of modern science, and those we use to help us find problems to solve, the best of which concern pursuing the boundless factors of deciding well.

“In using the first type of model, we choose to ignore what we do not know about how what happens outside model domains affect what happens inside model domains. We can see this most clearly in the *ceteris paribus* assumption in marginalist economic models. In effect, we pretend to know more than we can ever possibly know in order to build logically consistent models that predict well within a given domain. If we are intellectually honest, we admit that these models can never be complete. There can never be a theory of everything. There can only be strategies for learning everything, which includes learning ever more about strategies for learning everything.

“In using the second type of model, we explicitly include what we do not currently know into our models of the world. In effect, we choose to address the problem that contains all other problems in pursuing the timeless end of deciding well. We divide this universal problem into infinitely large parts, each of which concerns how best to pursue a boundless factor of deciding well. We then use these infinitely large, partial models of the universal problem to help us find and judge problems to solve. If a problem rings true with all of these parts, we have found a beautiful problem to solve, a problem that is consistent with all that we currently know about pursuing the timeless end of deciding well.

“In choosing to use the second type of model, we choose to use our brains logically to address a problem that is too complex to address using logic alone. We may call this way of thinking about problems too complex to address using logic alone *beautiful reason*. Underlying beautiful reason is a concept of beauty based on the logical relations between the pursuits of boundless factors of deciding well. We may call this concept *reasonable beauty*. Such beauty is alien to modern science, but not to modern art. In the movie based on astronomer Carl Sagan’s book, *Contact*, billionaire industrialist S. R. Hadden said that the key to translating the alien message was realizing that our current way of reasoning is not the best: “An alien intelligence is going to be more advanced and that means efficiencies functioning on multiple dimensions and in multiple dimensions.” Such are the efficiencies of pursuing Beauty.”

Appendix A, *Inducing the Creation of Knowledge*, end

Added the following subsection:

“**Looking Forward**

The Toyota strategy for learning how to produce ever more leanly does not depend on any particular machine tool technology. When Ohno envisioned his means of producing ever more leanly, there were no automated milling machines or robots. Today, these tools fit so neatly into the Toyota system that they might have emerged from it. In the near future, additive manufacturing tools (3D printers) will begin to replace traditional tools. As they do, Toyota factories will become ever leaner.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix A, Less is More, end

Added the following paragraph:

“From a modern view of producing well, the ideal end of producing well is a single machine that can produce *efficiently* any material good. From the multiple-frame view, the ideal end of producing well is a process for producing (*ever more*) *wisely* what we need to live well. The economics of producing well concerns not only of how we make pins (Smith) and who truly owns the pins we make (Marx and the marginalist revolutionaries), but also why we make pins. Producing well calls for us to decide well, which in turn calls for us to produce well. *The timeless end of producing well is a boundless factor of deciding well.*”

Changes in Version 2012.12.07

Preface, fourth paragraph

Changed “**these constraints**” to “**them**” in the last sentence.

Chapter 1, Beautiful Reason and Reasonable Beauty, title

Changed title to “**Timeless Reason.**”

Chapter 1, Timeless Reason, fourth paragraph

Changed “parts” to “**partial models**” in the last sentence.

Chapter 1, Beautiful Reason, last paragraph

“In choosing to use the second type of model, we choose to **use our brains logically** to address a problem that **is** too complex to address using **logic** alone. We may call this way of thinking about problems too complex to address using logic alone *beautiful reason*. Underlying beautiful reason is a concept of beauty based on the logical relations between the pursuits of boundless factors of deciding well. We may call this concept *reasonable beauty*. Such beauty is alien to modern science, but not to modern art. In the movie based on astronomer Carl Sagan’s book, *Contact*, billionaire industrialist S. R. Hadden said that the key to translating the alien message was realizing that our **current** way of reasoning is not the best: “An alien intelligence is going to be more advanced and that means efficiencies functioning on multiple dimensions and in multiple dimensions.” Such are the efficiencies of pursuing Beauty.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In choosing to use the second type of model, we choose to address problems that are too complex to address using temporal (rational/modern) reason alone. We may call this way of thinking about problems too complex to address using temporal reason alone *timeless reason*.

“Timeless reason concerns the strategy we use to address problems too complex to address using temporal reason alone. In building models of the world, we face problems. The most basic of these problems is the problem of whether the problem we believe is best is indeed best. Dwight Eisenhower provided us with a solution to this problem: “If a problem cannot be solved, enlarge it.” If we follow this simple maxim to its logical conclusion, we end with the problem that contains all other problems in deciding well. Our problem then becomes one of how best to address this universal problem.

“We do not have the knowledge we need to build a formal model of this universal problem. The best we can do is to build a model that provides us with a strategy for addressing it. As we shall see, such a grand strategy ought to provide us with the ability to peer into and discern the inner nature of things, the internal drive to think and take action without being urged, the power to adjust or change in order to cope with new or unforeseen circumstances, and the power to perceive or create interaction of apparently disconnected events or entities in a connected way.¹⁶ The strategy for learning put forth in this work provides us with ever more of this knowledge.

“Timeless Beauty

Underlying this multiple-frame concept of reason is a concept of beauty based on the logical relations between the pursuits of boundless factors of deciding well. Such beauty is alien to modern science, but not to modern art. In the movie based on astronomer Carl Sagan’s book, *Contact*, billionaire industrialist S. R. Hadden said that the key to translating the alien message was realizing that our modern way of reasoning is not the best: “An alien intelligence is going to be more advanced and that means efficiencies functioning on multiple dimensions and in multiple dimensions.” Such are the efficiencies of pursuing Beauty.

“We can also find this timeless concept of beauty in pre-modern art. Perhaps the most striking example comes from the decoration of the *Stanza della Segnatura*, a room originally intended to serve as the private library of Pope Julius II, the Renaissance warrior who aspired to create a Christian empire based on what he and his advisors believed were the timeless values of classical Greece and Rome.

“Most modern art historians recognize the role of squares and circles in unifying the decoration of the *Stanza della Segnatura*. Few, if any, recognize the equally important role of octagons. The most important octagon is the faux oculus at the center of the ceiling, which is the result of combining two Platonic ideas, the unity of virtue and the four elements:¹⁷

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

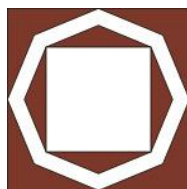


Above this oculus, four putti hold up and another four putti tether down a circle that contains a symbol of the papacy. This Tantalean image represents discovering ever more about both Wisdom and the world.

“The next most important octagon is that on which Plato and Aristotle stand in the fresco now known as *The School of Athens*:¹⁸



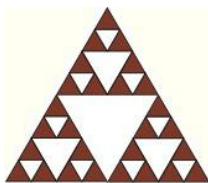
In pointing up, Plato tells us to aspire to a more refined form of the reasoning on which he and Aristotle stand, as represented by the pattern on the floor beneath their feet:



“A symbol for following this advice would combine elements of the symbol for the reasoning on which Plato and Aristotle stand with those of the symbol for pursuing Wisdom and worldly knowledge on the ceiling. Ironically, a means of combining these two symbols lies beneath our feet as we look up at them in the *Stanza della Segnatura*. We find this means in a crude version of a self-similar pattern known to Roman artisans since the late eleventh century:¹⁹

Boundless Pragmatism

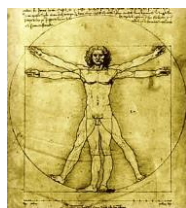
Changes from May 15, 2008 through December 31, 2013



“Using this pattern as a model, we can imagine a self-similar pattern that combines the simplicity of the floor symbol with the dynamism of the ceiling symbol:



“As a symbol for the Renaissance, compare this image to Leonardo da Vinci’s *Vitruvian Man*:



“In as much as *Vitruvian Man* became a political banner for temporal reason (“Man is the measure of all things, of things which are, that they are, and of things which are not, that they are not.”), we likely would have been better off with the timeless symbol of octagons and squares. To pursue Wisdom well, we must beware of the foolish use of such temporal symbols as *Vitruvian Man* and of such temporal beliefs as the Protagorean sophistry that we associate with it.

“¹⁶ *Patterns of Conflict*, 2005 Defense in the National Interest revision, slide #144. This slide presentation is available online in the Boyd archive section of Project White Horse, <<http://www.projectwhitehorse.com/boyardsarchive.htm>> (30 November 2012).”

“¹⁷ A high resolution image of the *Stanza della Segnatura* ceiling is available online at <http://upload.wikimedia.org/wikipedia/commons/9/90/Raphael_-_Ceiling_of_the_Selling_Room.jpg> (30 November 2012). The four circles containing women represent poetry, philosophy, jurisprudence, and theology. The four hourglass composites of scenes from Greek myth and Roman history represent earth, water, air and fire. Together with the central oculus, these four composites form a Greek cross. The center of this cross represents both *Hagia Sophia* (Holy Wisdom) and *quintessence* (the mysterious fifth element).”

“¹⁸ A high resolution image of *The School of Athens* is available online at <http://upload.wikimedia.org/wikipedia/commons/9/94/Sanzio_01.jpg> (30 November

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

2012). In the decoration of the *Stanza della Segnatura*, octagons represent the pursuit of Wisdom and circles represent the rational reasoning of geometry, mathematics, and logic. The octagon embedded in the square represents the rationale for pursuing Wisdom. The square embedded in the octagon represents the need for rational reasoning in pursuing Wisdom. For more about the art of the *Stanza della Segnatura*, see Appendix B.”

“¹⁹ Conversano, E., Tedeschini Lalli, L., “Sierpinski Triangles in Stone on Medieval Floors in Rome,” *Aplimat - Journal of Applied Mathematics*, Vol. IV (2011), No. IV, pp. 113–122, available online at http://www.journal.aplimat.com/volume_4_2011/Journal_volume_4/Number_4/Conversano_Tedeschini.pdf> (30 November 2012).”

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph, footnote, first two sentences

“We can never solve the problem of computing the value of π . In the words of Dwight Eisenhower, “If a problem cannot be solved, enlarge it.””

were deleted.

Chapter 4, *Academic Fields*, fourth paragraph, end

Added the sentence:

“The true sciences would include mathematics as the science of patterns.”

Chapter 6, *Experiencing Mystical Oneness*, first paragraph, footnote

Changed reprint reference from paperback (Three Rivers Press, 1995) to hardcover (Modern Library, 1994). Removed page numbers from reprint information. Used Modern Library translation.

Chapter 8, *Rules of Reason*, fourth paragraph, footnote, last two sentences

“In Plato’s early-to-middle transitional dialogue *Protagoras*, Socrates argues for the unity of the virtues, an idea beautifully captured by Raffaello Sanzio in the decoration for the study housing the library of Pope Julius II. For more about this, see Appendix B.”

were changed to:

“In Plato’s early-to-middle transitional dialogue *Protagoras*, Socrates argues for the unity of virtue.”

Appendix A, *Looking Forward*, entire subsection

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“*Looking Forward*”

The Toyota strategy for learning how to produce ever more leanly does not depend on any particular machine tool technology. When Ohno envisioned his means of producing ever more leanly, there were no automated milling machines or robots. Today, these tools fit so neatly into the Toyota system that they might have emerged from it. In the near future, additive manufacturing tools (3D printers) will begin to replace traditional tools. As they do, Toyota factories will become ever leaner.”

was moved from the end of the **Temporal Details** section to the end of the **Producing Ever More Leanly** section.

Appendix A, Less is More, last paragraph

Changed “live *well (ever more)*” to “live” in the second sentence.

Removed italics from the last sentence: “**The timeless end of producing well is a boundless factor of deciding well.**”

Appendix B, all paragraphs

“The **published** version of this work will include a three-part appendix that addresses the role of art in pursuing Wisdom. The first part defines this role. The second addresses the art of the *Stanza della Segnatura*. The last addresses the art of this work. **What follows is a sample that concerns the long history of beautiful reasoning in Western thought.**

“**Most modern art historians recognize the role of squares and circles in unifying the decoration of the *Stanza della Segnatura*. Few, if any, recognize the role of octagons. From the multiple-frame view, squares represent modern reason (geometry, mathematics, and logic); circles Wisdom; and octagons the reasoning of pursuing the boundless factors of deciding well.**

“**The most important octagon is the faux oculus at the center of the ceiling, which is the result of combining the timeless pursuit of the unity of virtues (Holy Wisdom) and the four temporal elements.¹ Above this oculus, four putti hold up and another four putti tether down a circle containing a symbol of the papacy. This Tantalean image represents discovering ever more about not only Holy Wisdom, but also the timeless fifth element.**

“**The next most important octagons are those intermixed with squares in the coffered barrel vault toward which Plato points in the fresco now known as *The School of Athens*.² Beneath Plato and Aristotle’s feet, octagons both contain and are contained in squares. In pointing up, Plato tells us to aspire to a more refined form of the reasoning on which he and Aristotle stand.”**

“¹ An image of the *Stanza della Segnatura* ceiling is available online at http://en.wikipedia.org/wiki/File:Raphael_-_Ceiling_of_the_Selling_Room.jpg (15 October 2012). To download this image, click anywhere on it. To enlarge the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

downloaded image, click anywhere on it. Use the scroll bars to navigate around the enlarged image. Click it again to return to the original downloaded image. The four circles containing women represent poetry, philosophy, justice, and theology. The four hourglass composites of scenes from Greek myth and Roman history represent earth, water, air and fire. Together with the central oculus, these four composites form a Greek cross.”

“² An image of the *The School of Athens* is available online at <http://en.wikipedia.org/wiki/File:Sanzio_01.jpg> (15 October 2012). To download this image, click anywhere on it. To enlarge the downloaded image, click anywhere on it. Use the scroll bars to navigate around the enlarged image. Click it again to return to the original downloaded image.”

were changed to:

“The **printed** version of this work will include a three-part appendix that addresses the role of art in pursuing Wisdom. The first part defines this role. The second addresses the art of the *Stanza della Segnatura*. The last addresses the art of this work.”

Changes in Version 2012.12.17

In printed copy, converted all footnotes and blocked quotes to single spacing. Also converted all blocked quotes to from Times New Roman 10 point to Arial 9 point font.

On website, eliminated download option.

Chapter 4, *Academic Fields*, fourth paragraph, last sentence

Added the footnote:

“² For more about mathematics as the science of patterns, see Appendix C.”

Added the following appendix:

Appendix C

The Science of Patterns

“Philosophy is written in this all-encompassing book that is constantly open before our eyes, that is the universe; but it cannot be understood unless one first learns to understand the language and knows the character in which it is written. It is written in mathematical

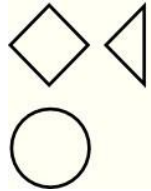
Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

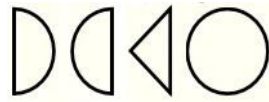
language, and its characters are triangles, circles and other geometrical figures; without these it is humanly impossible to understand a word of it, and one wanders around pointlessly in a dark labyrinth.” — *Galileo Galilei*

A Modern Intelligence Test

Imagine two series of objects that transform themselves according to the same set of rules. We are given the first series of objects and the first object in the second series:

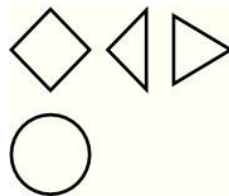


Following the way that the first object transforms into the second object in the top row, which of the following objects will the object in the bottom row transform into?



According to the reason of the designers of modern intelligence quotient (IQ) tests, the correct answer is the second object.

Now consider what happens when we include another object in the first series:



Here the reason of modern IQ test designers appears to fall apart. Given that the second object in the bottom row is the second candidate, none of the four candidates appears to make sense for the third object. From the view of the modern IQ test designers, the third object appears to be an *anomaly*, an object that conflicts with their current beliefs about the world.

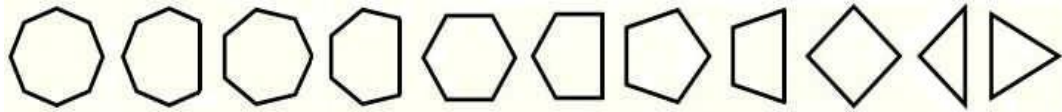
We may begin our search for other transformation processes by considering what we currently know about the three top-row objects. If we have studied geometry, we know that all three are *convex polygons*, polygons with interior angles less than or equal to 180 degrees. They are also *cyclic polygons*, polygons that have circumscribing circles, circles that contain all of vertices of the polygon that they surround. Further, all three appear to have circumscribing circles of the same size. We also know that the first and third objects

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

are *regular polygons*, polygons that are both *equilateral* (all sides are equal in length) and *equiangular* (all interior angles are equal in degree). Both of these objects also appear to have a vertex on the rightmost point of their circumscribing circle. Finally, we know that the second object looks like the first without the vertex on the rightmost point of its circumscribing circle.

From these observations, we can imagine a transformation process that uses two steps. The first step transforms a polygon having a point on the rightmost point of its circumscribing circle by replacing this point and connecting sides with a line segment that connects the adjacent vertices. The second step transforms a polygon not having a vertex on the rightmost point of its circumscribing circle into a regular polygon having the same number of sides and a vertex on the rightmost point of its circumscribing circle. To confirm that this transformation process can explain this three-object sequence, we can apply it to an octagon that has a vertex on the rightmost point of its circumscribing circle:



As expected, this two-step process yields the top-row sequence.

This solution to the three-object problem lacks what mathematicians call rigor. One way that we might provide this rigor is to program our generating process into a computer using an object-oriented programming language. This calls for imagining a language for representing objects that such a program can use to transform and display objects.

We might choose to represent objects in the way that we classify them. For example, we would represent regular polygons as regular polygons and irregular polygons as irregular polygons. A full representation of polygons calls for including their number of sides. Using this scheme, we might represent regular polygons as collections consisting of the character R and an integer for the number of sides and irregular polygons as collections consisting of the character I and an integer for the number of sides. Using this internal (programming) language, the eleven-object sequence starting with a hexagon would be:

R8, I7, R7, I6, R6, I5, R5, I4, R4, I3, R3

Our polygon transformation methods would be:

For R objects: change the character to I, subtract 1 from the integer, and return.

For I objects: change the character to R and return.

We would also need to program methods for displaying objects. Assuming that we want to display our objects as geometric figures rather than as strings, we encounter a small efficiency problem. In order to display irregular polygons properly, the display method for irregular polygons must recreate the representation of the preceding regular polygon.²

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

We can address this small efficiency problem by basing our internal language on the process of transforming objects rather than the results of transforming objects. One way that we might do so is by replacing our symbol for regular polygons (R) with a symbol for regular polygons that we do not need to transform (N), and by replacing our symbol for irregular polygons (I) with the symbol for regular polygons that we need to transform (Y). Using this internal language, the eleven-object sequence starting with a hexagon would be:

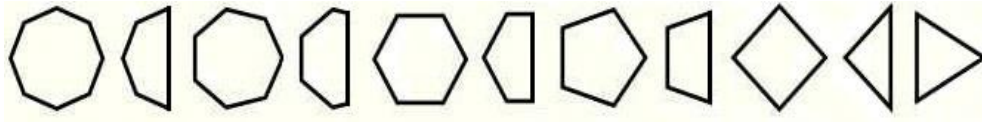
N8, Y8, N7, Y7, N6, Y6, N5, Y5, N4, Y4, N3

Our polygon transformation methods would be:

For N objects: change the character to Y and return.

For Y objects: change the character to N, subtract 1 from the integer, and return.

By making this simple change, we can now conceive of transformation processes that were previously inconceivable. For example, we can now conceive of a solution to the three-object problem that has a left-handed semicircle as its second object. To do so, we modify the method that displays objects with character Y. Specifically, we replace the function that replaces the rightmost vertex and sides with a line segment that connects the adjacent vertices with a function that replaces all points to the right of the center of the circumscribing circle with a line segment that connects the object points directly above and below this center. To confirm that this process can explain top-row sequence in our three-object problem, we can apply it to an octagon that has a vertex on the rightmost point of its circumscribing circle:



As expected, this process yields the top-row sequence.

When we go to apply either of these transformation processes to the object in the bottom row, we immediately encounter a problem. This apparent circle may be a circle. It may also be either a polygon with a very large number of sides or an *apeirogon*, a polygon with a countably infinite number of sides.³ We need to expand our internal language, our transformation methods, and our display methods to include not only circles, but also apeirogons.

Let us begin with the internal language. We need to distinguish between apeirogons not to be transformed (n) and those to be transformed (y). Similarly, we need to distinguish between circles not to be transformed (-) and those to be transformed (+). Because both apeirogons and circles have a fixed number of sides, we do not need to identify their number of sides. However, we do need a method to stop the program from producing infinitely long sequences of objects. Rather than using the integer to keep track of the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

number of sides, we can use it to keep track of the number of times a display method has displayed each type of object.

Our transformation methods for these four types of objects would be:

For n objects: change the character to y and return.

For y objects: change the character to n and return.

For $-$ objects: change the character to $+$ and return.

For $+$ objects: change the character to $-$ and return.

In the first case, transforming a circle yields a circle. Hence, the first object in the bottom row must be an apeirogon, a transformed apeirogon, or a circle. These three objects yield the following three-object sequences:

apeirogon, transformed apeirogon, apeirogon
transformed apeirogon, apeirogon, transformed apeirogon
circle, circle, circle

If displayed geometrically, these three sequences would appear to be identical.

In the second case, transforming an apeirogon yields a left-handed semi-apeirogon and transforming a circle yields a left-handed semicircle. Hence, the first object in the bottom row must be either an apeirogon or a circle. These two objects yield the following three-object sequences:

apeirogon, left-handed semi-apeirogon, apeirogon
circle, left-handed semicircle, circle

If displayed geometrically, these two sequences would appear to be identical.

In conclusion, we have two equally plausible transformation processes, each producing a different answer not only to our three-object but also our two-object problem. Which of these processes ought we to choose?

The Big Picture

From the timeless view of deciding well put forth in this work, reasoning well calls for us to pursue the timeless end of reasoning well, which in turn calls for us to pursue the timeless end of deciding well. Reasoning well considers not only how well our models ring true with everything we currently know about geometry, mathematics, and logic, but also how well they ring true with everything else we currently know about deciding well.

Imagine that we have just flown into the San Francisco International Airport in California. While driving south on the Bayshore Freeway, we see a billboard displaying the three-object problem described above and a cryptic website address. When we go to the website, we find that its homepage contains nothing more than a small textbox for our e-

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

mail address, a large textbox with a vertical scroll bar for our answer, and a button for submitting our answer. What do we type into the large textbox?

Before we submit an answer, we ought to consider the context of this problem. Specifically, we ought to consider what the people who designed this test want from us and what we in turn want from them. Whoever they are, it appears that they seek people who excel in reasoning. Assuming that we believe that it would be wise to be found by these people, how do we best let them know that they have found someone who excels in reasoning? One way is to provide as complete of an answer to their problem as we can in a form that they can understand. Another way is to show that we know how to reason well in the current context.

We might begin our answer with a mathematical description of the problem and our solution to it. We begin with a description of the mathematical symbols we plan to use to describe the pattern we see in the top row:

Regular polygon having x number of sides: $\{x\}$
Function that transforms first top-row object (x) into second top-row object: $f_1(x)$
Function that rotates object (x) so that one point lies on the rightmost point of its circumscribing circle: $f_2(x)$
Large counting number (René Descartes used one million): n
Number of sides in an *apeirogon* (infinity of counting numbers): ∞

We might then describe the top-row objects and a general pattern for each of the three possible types of objects followed by two families of solutions:

Three top-row objects: $f_2(\{4\})$, $f_1(f_2(\{4\}))$, $f_2(\{3\})$
General pattern for polygons: $f_2(\{n\})$, $f_1(f_2(\{n\}))$, $f_2(\{n-1\})$, $f_1(f_2(\{n-1\}))$, $f_2(\{n-2\})$, $f_1(f_2(\{n-2\}))$...
General pattern for apeirogons: $f_2(\{\infty\})$, $f_1(f_2(\{\infty\}))$, $f_2(\{\infty\})$, $f_1(f_2(\{\infty\}))$, ...
General pattern for circles: circle, $f_1(\text{circle})$, circle, $f_1(\text{circle})$...

FIRST CASE FOR $f_1(x)$:

For polygons, replace the rightmost vertex and its sides with line segment connecting its adjacent vertices. For circles, remove the rightmost point.

Family of five solutions (all geometric representations appear to be identical):

$f_1(f_2(\{n\}))$, $f_2(\{n-1\})$
 $f_1(f_2(\{n\}))$, $f_2(\{n-1\})$, $f_1(f_2(\{n-1\}))$
 $f_2(\{\infty\})$, $f_1(f_2(\{\infty\}))$, $f_2(\{\infty\})$
 $f_1(f_2(\{\infty\}))$, $f_2(\{\infty\})$, $f_1(f_2(\{\infty\}))$
circle, circle, circle

SECOND CASE FOR $f_1(x)$:

For all objects, replace all points on the object to the right of the center of its circumscribing circle with a line segment that connects the points directly above and below this center.

Family of three solutions (all geometric representations appear to be identical):

$f_2(\{n\})$, $f_1(f_2(\{n\}))$, $f_2(\{n-1\})$
 $f_2(\{\infty\})$, $f_1(f_2(\{\infty\}))$, $f_2(\{\infty\})$
circle, left-handed semicircle, circle

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

We might end by discussing the context of this answer:

I assume that you are looking for people who reason well to help you decide well. If so, your reason for finding people who reason well will be consistent with pursuing the timeless end of deciding well. For it not to be consistent with pursuing this timeless end, your reasoning, however *rational*, however consistent with the reasoning of geometry, mathematics, and logic, would be foolish.

The context of pursuing the timeless end of deciding well puts rationality in a different light. In addressing your three-object problem, I needed to make choices. In making these choices, I assumed what mathematicians currently assume. For example, I assumed that apeirogons exist. When some modern mathematicians assume this, they assume apeirogons are useful tools for helping them “do” mathematics. When others assume this, they assume that apeirogons exist independently of beliefs and circumstances.

From the view of pursuing the timeless end of deciding well, we construct tools for pursuing the timeless end of deciding well. Whether or not these tools are independent of our beliefs and circumstances depends on whether they are indispensable in pursuing this end. By definition, we can never achieve this timeless end. Hence, we can never prove *formally* that any tool for pursuing this end is indispensable. The best we can do is to seek to disprove *empirically* that the tool is indispensable. We do so by acting as if the tool in question is indispensable.

We can apply this reasoning to mathematics as a whole. Mathematics is the study of patterns. We use it as a tool for pursuing the timeless end of deciding well. To prove that mathematics is indispensable in pursuing this the timeless end, we ought to seek to disprove that it is indispensable in pursuing this end. We do so by acting as if it is indispensable. So conceived, mathematics is not only the *study* of patterns, but also the *science* of patterns.

If you seek people who reason well in order to decide well, let us seek to reason well together.

¹ Galilei, Galileo, *The Essential Galileo*, edited and translated by Maurice Finocchiaro (Indianapolis: Hackett Publishing Company, 2008), p. 182.

² Most expert object-oriented programmers would recognize this internal language as a bad pattern. Although it provides the desired answer in this case, it limits flexibility. Arguably, it also tends to blind us to other possible solutions.

³ Most mathematicians consider apeirogons to be *degenerate polygons*, polygons just inside the polygon border that have special features that distinguish them from other polygons. The source of their special features is the strange mathematics of infinities. As strange as it may seem, removing any finite number of sides from an apeirogon yields an apeirogon. Just over the polygon border from the apeirogon is the circle. A circle is a collection of an uncountably infinite number of points a given distance from a given point on a surface. As strange as it may seem, removing any finite or countably infinite number of points from a circle yields a circle.

Changes in Version 2012.12.22

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, fourth paragraph

Changed “them” back to “these constraints” in the last sentence.

Chapter 1, *Seeing Through Apparent Miracles*, second paragraph

Changed “one of these Flatlanders encounters an” to “one of these Flatlanders, a square named A. Square, encounters a sphere, an” in the second sentence.

Changed “the Flatlander” to “A. Square” in all (3 occurrences).

Changed “the Spacelander” to “the sphere” in all (2 occurrences).

Chapter 1, Timeless Beauty, last paragraph

“As a symbol for the Renaissance, compare this image to Leonardo da Vinci’s *Vitruvian Man*:

[Vitruvian Man image]

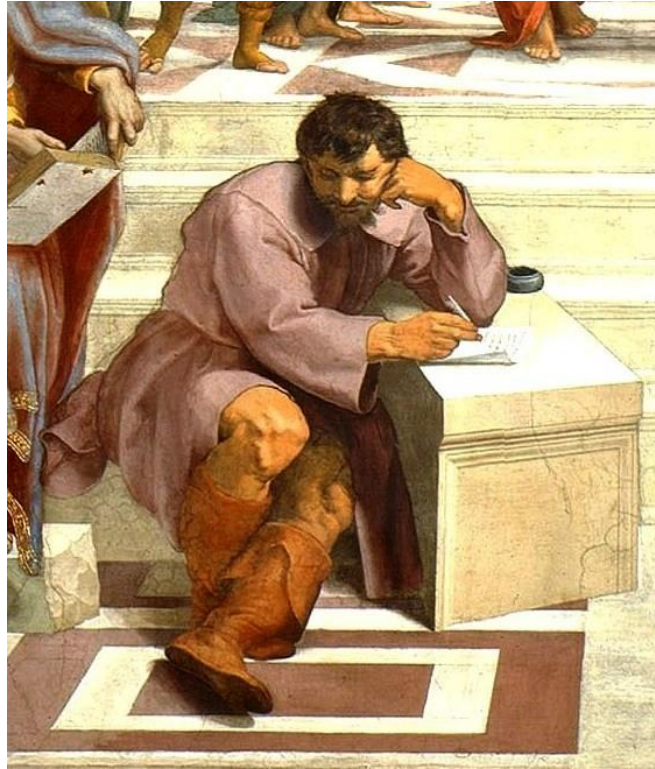
In as much as *Vitruvian Man* became a political banner for temporal reason (“Man is the measure of all things, of things which are, that they are, and of things which are not, that they are not.”), we likely would have been better off with the timeless symbol of octagons and squares. To pursue Wisdom well, we must beware of the foolish use of such temporal symbols as *Vitruvian Man* and of such temporal beliefs as the Protagorean sophistry that we associate with it.”

was changed to:

“Reinforcing this pattern as a symbol of refining the reason of Plato and Aristotle is the figure of Heraclitus, the pre-Socratic Greek philosopher of flux, of endless change:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013



“Raphael’s cartoon (full-sized paper template) for this fresco does not show this figure. Raphael chipped away part of his completed work in order to add it. Some art historians believe that Raphael added it in response to seeing Michelangelo’s recently-completed figure of Jeremiah on the ceiling of the Sistine Chapel, arguably a symbol of the Divinely inspired representing the Divinely inspired.²⁰ Regardless of the truth of this belief, we can see that the figure of Heraclitus visually connects a symbol for endless rationality (a square within a square within a square) to a symbol for the reason of Plato and Aristotle (a square within an octagon within a square). As Heraclitus contemplates the symbol for endless rationality under his feet, he records his thoughts on the level of his heart. The architectural block on which he both writes and leans not only is out of line with the rest of the architecture in the fresco, but also violates its single-point perspective with a conflicting two-point perspective. This striking juxtaposition reminds us of the problem of representing higher dimensional objects, A. Square’s “up-but-not-north” problem. From all of these cues, it is easy to imagine Heraclitus suddenly inspired to replace each of the squares in the pattern beneath his feet with the more complex pattern slightly above his head, thereby creating a three-level version of the five-level image shown above.

“As a symbol for the Renaissance, compare this timeless symbol of refining reason to Leonardo da Vinci’s *Vitruvian Man*, which represents the techno-science of first-century BCE Roman engineer Vitruvius:

[Vitruvian Man image]

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

In as much as *Vitruvian Man* became a political banner for temporal reason, we likely would have been better off with **this** symbol of **refining reason**. To pursue Wisdom well, we must beware of the foolish use of such temporal symbols as *Vitruvian Man* and of such temporal beliefs as the Protagorean sophistry that we associate with it (“**Man is the measure of all things, of things which are, that they are, and of things which are not, that they are not.**”).”

“²⁰ Columbia University’s Art Humanities Series video on *The School of Athens* makes this point. It is available online at <<http://www.youtube.com/watch?v=uOrG6jfBzEU>> (20 December 2012).”

Chapter 7, *An Extraordinary Anomaly*, last paragraph

“Deciding well calls for all of us to **decide like fully human beings; hence to** judge actions by invariant values and people by the content of their character as revealed by their actions.”

was changed to:

“Deciding well calls for all of us to judge actions by invariant values and people by the content of their character as revealed by their actions.”

Appendix C, *The Big Picture*, last paragraph, first block

Changed “**the reasoning of geometry, mathematics, and logic**” to “**rationality**” in the last sentence.

Appendix C, *The Big Picture*, last paragraph, second block

“**The context of pursuing the timeless end of deciding well puts rationality in a different light. In addressing your three-object problem, I needed to make choices. In making these choices, I assumed what mathematicians currently assume. For example, I assumed that apeirogons exist. When some modern mathematicians assume this, they assume apeirogons *do not* exist independently of beliefs and circumstances. Apeirogons are inventions rather than discoveries. When others assume this, they assume that apeirogons *do* exist independently of beliefs and circumstances. Apeirogons are discoveries rather than inventions.**”

was deleted.

Appendix C, new last two blocks

were converted to normal font and paragraph formats and moved to the end of the section.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2012.12.22

Chapter 1, Timeless Beauty, third paragraph

“Most modern art historians recognize the role of squares and circles in unifying the decoration of the *Stanza della Segnatura*. Few, if any, recognize the equally important role of octagons. The most important octagon is the faux oculus at the center of the ceiling, which is the result of combining two Platonic themes, the unity of virtue and the four elements:”

was changed to:

“Most modern art historians recognize the role of circles, which represent the Divine, and squares, with represent rationality (the reasoning of geometry, mathematics, and logic), in unifying the decoration of the *Stanza della Segnatura*. Equally important is the role of octagons, which represent the timeless pursuit of Wisdom and knowledge of the world.

“The most important octagon is the faux oculus at the center of the ceiling, which is the result of combining two Platonic themes, the unity of virtue and the four elements:”

Chapter 1, Timeless Beauty, new fourth paragraph

Changed “This” to “From the multiple-frame view of this work, this” in the last sentence.

Chapter 1, Timeless Beauty, new fifth paragraph, footnote

“⁷ A high resolution image of the *Stanza della Segnatura* ceiling is available online at <http://upload.wikimedia.org/wikipedia/commons/9/90/Raphael_-_Ceiling_of_the_Selling_Room.jpg> (30 November 2012). The four circles containing women represent poetry, philosophy, jurisprudence, and theology. The four hourglass composites of scenes from Greek myth and Roman history represent earth, water, air and fire. Together with the central oculus, these four composites form a Greek cross. The center of this cross represents both *Hagia Sophia* (Holy Wisdom) and *quintessence* (the mysterious fifth element).”

was promoted to the body of the text immediately after the image and changed to:

“The four circles containing women represent poetry, philosophy, jurisprudence, and theology. The four hourglass composites of scenes from Greek myth and Roman history represent earth, water, air and fire. Together with the central oculus, these four composites form a Greek cross. The center of this cross represents both *Hagia Sophia* (Holy Wisdom) and *quintessence* (the mysterious fifth element).”

Chapter 1, Timeless Beauty, new sixth paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹⁸ A high resolution image of *The School of Athens* is available online at <http://upload.wikimedia.org/wikipedia/commons/9/94/Sanzio_01.jpg> (30 November 2012). In the decoration of the *Stanza della Segnatura*, octagons represent the pursuit of Wisdom and circles represent the rational reasoning of geometry, mathematics, and logic. The octagon embedded in the square represents the rationale for pursuing Wisdom. The square embedded in the octagon represents the need for rational reasoning in pursuing Wisdom. For more about the art of the *Stanza della Segnatura*, see Appendix B.”

was deleted.

Chapter 1, Timeless Beauty, new sixth paragraph

Changed “pattern” to “**square-within-an-octagon-within-a-square** pattern” in the last sentence.

Chapter 1, Timeless Beauty, second to last paragraph, first three sentences

“**Raphael’s cartoon (full-sized paper template) for this fresco does not show this figure. Raphael chipped away part of his completed work in order to add it. Some art historians believe that Raphael did this in response to seeing Michelangelo’s recently-completed figure of Jeremiah on the ceiling of the Sistine Chapel, arguably a symbol of the Divinely inspired representing the Divinely inspired.**”

were changed to:

“Raphael completed **what many people believe to be his greatest work without this figure. Some art historians believe that he added it as a symbol of inspired genius** in response to seeing Michelangelo’s recently-completed figure of Jeremiah on the ceiling of the Sistine Chapel.”

Chapter 1, Timeless Beauty, second to last paragraph

Changed “**five-level**” to “**six-level**” in the last sentence.

Appendix A, title

Changed “**Producing Well**” to “**Ever Leaner Production.**”

Appendix A, Producing Ever More Leanly

Changed title to “**The Toyota Approach.**”

Appendix A, Less is More, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From a modern view of producing well, the ideal end of producing well is a single machine that can produce any material good *efficiently*. From the multiple-frame view, the ideal end of producing well is a process for producing what we need to live *wisely*. The economics of producing well concerns not only of how we make pins (Smith) and who truly owns the pins we make (Marx and the marginalist revolutionaries), but also why we make pins. Producing well calls for us to decide well, which in turn calls for us to produce well. The timeless end of producing well is a boundless factor of deciding well.”

was deleted.

Appendix B

Changed “Telling” to “The Art of Deciding” in the title.

Entire Document

Tested external links and updated external link test dates.

Changes in Version 2012.12.26

Chapter 1, Timeless Beauty, fifth paragraph, end

Added the footnote:

“¹⁶ Pragmatic philosophers may find this distinction between temporal and timeless reason useful in addressing problems raised by Nelson Goodman in his book *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1983).”

Chapter 3, *Overcoming Constraints in Deciding Well*, third paragraph

“From the view of modern mathematics, π is *computable*, which is to say that we can program a Turing machine, an abstract computing machine that does nothing more than follow programmed rules, to compute π to any number of decimal places. In contrast, from the multiple-frame view, π is computable in theory, but not in practice. In theory, the claim that π is computable arises from reducing the actual problem of computing π to an abstract problem of computing π that ignores constraints. In practice, we need to consider constraints on computing π . Ignoring these constraints tends to blind us to the practical problems involved in choosing the best means of computing π .”

was reduced to a footnote.

Chapter 6, Worldly Benefits of Detachment, first paragraph, third sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We find this benefit in the *Bhagavad-Gita*:

“Always perform with detachment
any action you must do;
performing action with detachment,
one achieves the highest good.””

“*The Bhagavad-Gita*, trans. Barbara Stoler Miller (New York: Columbia University Press, 1986), third teaching, paragraph 19.”

was deleted.

Chapter 6, A Common Timeless End, last two paragraphs

“However useful creating a frame for linking well may be in helping us better understand living well, it does not tell us whether we ought to link well in order to live well or to live well in order to link well. **As a practical matter, we only need to choose between living well and linking well when we lack the resources to pursue both. Pursuing the timeless end of deciding well provides us with the resources to pursue both. Deciding well makes it ever less probable that we will need to choose between living well and linking well.**

“From a logical view, the belief that we ought to link well in order to live well conflicts with the belief that we ought to live well in order to link well. From the multiple-frame view, we best settle this conflict by having these beliefs compete in the marketplace of ideas for helping us decide well.”

were changed to:

“However useful creating a frame for linking well may be in helping us better understand living well, it does not tell us whether we ought to link well in order to live well or to live well in order to link well. From a logical view, the belief that we ought to link well in order to live well conflicts with the belief that we ought to live well in order to link well. From the multiple-frame view, we **only need to choose between living well and linking well when we lack the resources to pursue both. Pursuing the timeless end of deciding well provides us with the resources to pursue both.** We best settle this conflict by having these beliefs compete in the marketplace of ideas for helping us decide well.”

Note that changes in the last week of 2012 are included in 2013. My intention was to finish the book in 2012. Any changes in 2013 were to be minor corrections recorded in to the 12/31/12 section. The substantial size of the changes called for moving the 12/31/12 section to the first quarter of 2013 change page.

Changes in Version 2013.03.30

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Entire Document

Changed “sovereign rights story” to “sovereign-rights story” in all (9 occurrences).

Appendices

Removed Appendix B (stub) from the work.

Removed references to Appendix B from footnotes in the *Public Entropy* subsection of the third chapter and the Good Policies section in the fifth chapter.

Demoted Appendix A to Appendix B. Updated references in footnotes in the first and third chapters.

Promoted Appendix C to Appendix A. Deleted reference to this appendix in a footnote in the *Academic Fields* subsection of the fourth chapter. Added a reference to the Georg Cantor footnote in the first chapter (see below).

Acknowledgments, first paragraph

Changed “**public** high school” to “high school” in the first sentence.

Acknowledgments, last paragraph

Changed “assistant” to “assistant **for financial matters**” in the second sentence.

Deleted “(1947-9)” and “(1949-59)” from the second sentence.

Changed “(1942-6)” to “**during the Second World War**” in the fourth sentence.

Preface, entire section

Changed “**complex adaptive**” to “” in all (3 occurrences).

Preface, seventh paragraph

Changed “of reason” to “of reason **than rationality**” in the last sentence.

Preface, eighth paragraph

Changed “*the science of science,*” to “” in the first sentence.

Chapter 1, title quote, footnote

Changed “commonly known **by various courtesy and honorary names, which include**” to “**more** commonly known **as**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Choosing Frames Well, first paragraph

Changed “**that help us survive and thrive. We naturally** arrange **concepts**” to “**, which we** arrange” in the first two sentences.

Changed “**useful** structures **for** reducing our sensations **of the world**” to “structures **useful in** reducing our sensations” in the last sentence.

Chapter 1, Choosing Frames Well, second paragraph

Changed “use **to reduce our sensations of the world to concepts**” to “use” in the first sentence.

Chapter 1, Choosing Frames Well, last paragraph, footnote, last three sentences

“**From this view, mathematics is the *science* of patterns. Rather than logic, its basis is the reason of pursuing the timeless end of deciding well. For more about this concept of mathematics, see Appendix A.**”

were changed to:

“For more about this, see Appendix A.”

Chapter 1, Choosing Frames Well, last paragraph, footnote, end

Added the sentence:

“**For more about this concept of mathematics, see Appendix A.**”

Chapter 1, Useful Frames, first paragraph, last three sentences

Changed “**to help**” to “**that help**” in all (2 occurrences).

Promoted sentences to a new paragraph.

Chapter 1, *The EOQ/RTS Example*, last paragraph

Changed “produce” to “produce **these goods**” in the fifth sentence.

Chapter 1, *Seeing Through Apparent Miracles*, second paragraph

Changed “**communicate his experiences in Spaceland**” to “**explain his journey**” in the sixth sentence.

Chapter 1, *Seeing Through Apparent Miracles*, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**these apparent miracles**” to “**their system**” in the third sentence.

Chapter 1, Values, third paragraph, footnote

Changed “**temporal view** third person **plural to timeless view** first person **plural**” to “third-person to first-person” in the third sentence.

Chapter 1, Values, fifth paragraph

Changed “**invariant with respect to**” to “**the same for all**” in the second sentence.

Changed “**English**” to “**Europeans**” in all (3 occurrences).

Inserted a paragraph break after the second sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, first paragraph, footnote

“**In other words, there exists a virtuous circle between deciding well and believing well.**”

was deleted.

Chapter 1, Values, last paragraph, third sentence

“¹³ **We might also call the timeless end of living well *the Good, Well-being, Welfare, or Eudaimonia*. ‘Happiness’ has the advantage of highlighting the temporal nature of the prevailing concept of happiness (a state of well-being).**”

was deleted.

Chapter 1, Timeless Reason, entire section

Changed “symbol **for**” to “symbol **of**” in all (7 occurrences).

Chapter 1, Timeless Reason, first two paragraphs

“From the view of this multiple-frame approach to deciding well, hereafter referred to simply as *the multiple-frame approach*, **expanding the scope of the problems we face helps us find better problems to solve. When we expand the scope of these problems to the limits of imagination, a structure of values independent of beliefs and circumstances emerges. Understanding the process by which we best progress toward these invariant ends can help us progress ever more readily.**¹⁵

“**The process by which we best progress towards these invariant ends** involves distinguishing between the models we use to help us solve given problems, **the best of**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

which are those of modern science, and those we use to help us find problems to solve, the best of which concern pursuing the boundless factors of deciding well.”

were changed to:

“From the view of this multiple-frame approach¹⁵ to deciding well, hereafter referred to simply as *the multiple-frame approach*, involves distinguishing between the models we use to help us solve given problems and those we use to help us find problems to solve.”

Chapter 1, Timeless Reason, new second paragraph

Changed “rationality (the reasoning of geometry, mathematics, and logic)” to “rationality” in the first sentence.

Deleted the last three sentences:

“If we are intellectually honest, we admit that these models can never be complete. There can never be a theory of everything. There can only be strategies for learning everything, which includes learning ever more about strategies for learning everything.”

Chapter 1, Timeless Reason, new third through fifth paragraphs

“In using the second type of model, we explicitly include what we do not currently know into our models of the world. In effect, we choose to address the problem that contains all other problems in pursuing the timeless end of deciding well. We divide this universal problem into infinitely large parts, each of which concerns how best to pursue a boundless factor of deciding well. We then use these infinitely large, partial models of the universal problem to help us find and judge problems to solve. If a problem rings true with all of these partial models, we have found a beautiful problem to solve, a problem that is consistent with all that we currently know about pursuing the timeless end of deciding well.

“In choosing to use the second type of model, we choose to address problems that are too complex to address using temporal (rational/modern) reason alone. We may call this way of thinking about problems too complex to address using temporal reason alone *timeless reason*.¹⁶

“Timeless reason concerns the models we use to find problems to solve in pursuing the timeless end of deciding well. In building these models, we face problems. The most basic of these problems is the problem of whether the problem we believe is best is indeed best. Dwight Eisenhower provided us with a solution to this problem: “If a problem cannot be solved, enlarge it.” If we follow this simple maxim to its logical conclusion, we end with the problem that contains all other problems in deciding well. Our problem then becomes one of how best to address this universal problem.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹⁶ Pragmatic philosophers may find this distinction between temporal and timeless reason useful in addressing problems raised by Nelson Goodman in his book *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1983).”

were changed to:

“In using the second type of model, we explicitly include what we do not currently know into our models of the world. **We use these models to help us find problems to solve.** The most basic of these problems is the problem of whether the problem we believe is best is indeed best. Dwight Eisenhower provided us with a solution to this problem: “If a problem cannot be solved, enlarge it.” Following this simple advice completely, we end with the problem that contains all other problems in deciding well. Our problem then becomes one of how best to address this universal problem.”

Chapter 1, Timeless Reason, last paragraph

Changed “formal” to “logically consistent and complete” in the first sentence.

Changed “this knowledge” to “these provisions” in the last sentence.

Chapter 1, Timeless Beauty, first paragraph

Changed “multiple-frame” to “timeless” in the first sentence.

Changed “efficiencies functioning on multiple dimensions” to “efficiency functioning on multiple levels” in the third sentence.

Changed “are the efficiencies” to “is the efficiency” in the last sentence.

Chapter 1, Timeless Beauty, third paragraph

Changed “the *Stanza della Segnatura*” to “this library” in the first sentence.

Changed “discovering” to “learning” in the last sentence.

Chapter 1, Timeless Beauty, fourth paragraph, second through last sentences

Added names of dialogues to the two Platonic themes (*Protagoras* and *Timaeus*) to the first sentence.

Changed “quintessence” to “aether” in the fifth sentence.

Added the following paragraph at the end of the sixth sentence:

“¹⁶ Taken together with the octagonal oculus, the pursuits of Beauty, Truth, Justice, and Wholeness form a Latin cross with the long member representing the factor in mind. We

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

can clearly see this cross in the horizontal and vertical rays emanating from the symbol of the Holy Ghost (encircled dove) in the fresco below the theology circle. Looking at this fresco, the factor we have in mind is Wholeness. A high-resolution image of this fresco is available online at

[http://upload.wikimedia.org/wikipedia/commons/1/19/Raphael - Disputation of the Holy Sacrament.jpg](http://upload.wikimedia.org/wikipedia/commons/1/19/Raphael_-_Disputation_of_the_Holy_Sacrament.jpg) (31 December 2012).”

Changed “multiple-frame” to “timeless” and “discovering” to “learning” in the last sentence.

Promoted the last sentence to a new paragraph and added the following:

“From the timeless view of this work, this Tantalean image represents learning ever more about both Wisdom and the world. The four aspects of virtue represent the timeless ends of contemplating well (Beauty), believing well (the Truth), governing ourselves well (Justice), and linking well with something infinitely greater than ourselves (Wholeness). The four putti holding up the papal symbol stand at the center of the edges of the octagon nearest to these boundless factors of deciding well. Three of the four putti tethering down this symbol stand at the center of the edges nearest to earth, water, and air. The putto that ought to stand at the center of the edge nearest to fire instead sits on the corner of fire and theology with his tether clearly in the domain of theology. This greater tension in theology concerns the conflict between our current beliefs about the pursuit of Wholeness and the true pursuit of Wholeness. Given our imperfect knowledge of pursuing Wisdom, the pursuits of Wholeness and the Truth, though interwoven, are not one and the same.¹⁷”

¹⁷ In a letter to Marcellinus of Carthage, Augustine of Hippo addressed this issue: “If anyone shall set the authority of Holy Writ against clear and manifest reason, he who does this knows not what he has undertaken; for he opposes to the truth not the meaning of the Bible, which is beyond his comprehension, but rather his own interpretation; not what is in the Bible, but what he has found in himself and imagines to be there.” In a letter to Christina of Lorraine concerning the use of biblical quotations in science, Galileo Galilei used this quote to buttress the claim that the Bible concerns how to go to heaven, not how heaven goes. An English translation of Galileo’s letter is available online at <http://www.college.columbia.edu/core/sites/core/files/text/Galileo.pdf> (31 December 2012).”

Chapter 1, Timeless Beauty, new sixth paragraph

Changed “now known as *The School of Athens*” to “below the philosophy circle” in the first sentence.

Changed “floor symbol with the dynamism of the ceiling symbol” to “square-within-an-octagon-within-a-square pattern with the dynamism of the oculus” in the last sentence.

Chapter 1, Timeless Beauty, new seventh paragraph, third through fifth sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“A symbol of **following this advice** would combine elements of the symbol of the reasoning on which Plato and Aristotle stand with those of the symbol of pursuing Wisdom and worldly knowledge **on the ceiling**. Ironically, a means of **combining these two symbols** lies beneath our feet as we look up at **them in the *Stanza della Segnatura***. We find this means in a crude version of a self-similar pattern known to Roman artisans since the late eleventh century:”

were changed to:

“A symbol of **this aspiration** would combine elements of the symbol of the reasoning on which Plato and Aristotle stand with those of the symbol of pursuing Wisdom and worldly knowledge **in the center of the ceiling**. **In his description of refining reason at the end of Book IX of *The Republic*, Plato provided us with a means of combining these elements into such a symbol. His Socrates describes the human psyche as consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. And so on to infinity. Our hydra parts are ruled by desire, our lion parts by spirit, and our human parts by reason. We refine reason by having our human parts train our lion parts to control our hydra parts. Ironically, a visual means of expressing this means of refining reason lies beneath our feet as we look up at the oculus. We find this means in a crude version of a self-similar tile pattern known to Roman artisans since the late eleventh century:”**

Chapter 1, Timeless Beauty, new eighth paragraph

Changed “**strategy we use to address problems too complex to address using temporal reason alone**” to “**models we use to find problems to solve in pursuing the timeless end of deciding well**” in the first sentence.

Changed “**models of the world**” to “**these models**” in the second sentence.

Chapter 1, Timeless Beauty, second to last paragraph

Changed “**the pre-Socratic Greek philosopher of flux, of endless change**” to “**which visually connects the square-within-a-square-within-a-square floor pattern (endless rationality) to the square-within-an-octagon-within-a-square floor pattern (reason of Plato and Aristotle)**” in the first sentence.

Changed “**conflicting two-point**” to “**two-point**” in the fourth sentence.

Deleted the second sentence: “**This figure visually connects the square-within-a-square-within-a-square floor pattern (endless rationality) to the square-within-an-octagon-within-a-square pattern (reason of Plato and Aristotle).**”

Chapter 1, Timeless Beauty, second to last paragraph, second to last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Raphael completed what many people believe to be his greatest work without this figure. Some art historians believe that he added it as a symbol of inspired genius in response to seeing Michelangelo’s recently-completed figure of Jeremiah on the ceiling of the Sistine Chapel.¹⁹ Regardless of the truth of this belief, we can see that the figure of Heraclitus visually connects a symbol of endless rationality (a square within a square within a square) to a symbol of the reason of Plato and Aristotle (a square within an octagon within a square). As Heraclitus contemplates the symbol of endless rationality under his feet, he records his thoughts on the level of his heart. The architectural block on which he both writes and leans not only is out of line with the rest of the architecture in the fresco, but also violates its single-point perspective with a conflicting two-point perspective. This striking juxtaposition reminds us of the problem of representing higher dimensional objects, A. Square’s “up-but-not-north” problem. From all of these cues, it is easy to imagine Heraclitus suddenly inspired to replace each of the squares in the pattern beneath his feet with the more complex pattern slightly above his head, thereby creating a truncated version of the endlessly self-similar image shown above:”

“¹⁹ Columbia University’s Art Humanities Series video on *The School of Athens* makes this point. It is available online at <<http://www.youtube.com/watch?v=uOrG6jfBzEU>> (22 December 2012).”

were changed to:

“This figure visually connects the square-within-a-square-within-a-square floor pattern (endless rationality) to a square-within-an-octagon-within-a-square pattern (reason of Plato and Aristotle). As Heraclitus contemplates the pattern under his feet, he records his thoughts on the level of his heart. The architectural block on which he both writes and leans not only is out of line with the rest of the architecture in the fresco, but also violates its single-point perspective with a conflicting two-point perspective. This striking juxtaposition reminds us of the problem of representing higher dimensional objects, of A. Square’s up-but-not-north problem. From all of these cues, it is easy to imagine Heraclitus suddenly inspired to replace each of the squares in the pattern beneath his feet with the more complex pattern slightly above his head, thereby creating a three-level version of the six-level image shown above:²¹”

“²¹ Raphael completed the philosophy fresco without the figure of Heraclitus. Some art historians believe that he added it as a symbol of inspired genius in response to seeing Michelangelo’s recently-completed figure of Jeremiah on the ceiling of the Sistine Chapel. The obvious reason that Raphael did not add this self-similar symbol of refining reason at the same time is that he did not imagine it. An alternative reason is that there was no place for it. Replacing the putti above the oculus in the ceiling would have better integrated the fresco dedicated to philosophy. However, it would have harmed the integration of the room as a whole by damaging the relation between the ceiling and the fresco dedicated to theology, particularly the common personification of natural phenomena that we do not yet understand.”

Chapter 1, Timeless Beauty, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“As a symbol of the Renaissance, compare this symbol to Leonardo da Vinci’s *Vitruvian Man*, which represents the techno-science of first-century BCE Roman engineer Vitruvius:

[*Vitruvian Man*]

In as much as *Vitruvian Man* became a political banner for temporal reason, we likely would have been better off with this symbol of refining reason. To pursue Wisdom well, we must beware of the foolish use of such temporal symbols as *Vitruvian Man* and of such temporal beliefs as the Protagorean sophistry that we associate with it (Man is the measure of all things, of things which are, that they are, and of things which are not, that they are not.”)

was changed to:

“[Three-level imagine of the square-within-an-octagon-within-a-square]

Compare this symbol to Leonardo da Vinci’s *Vitruvian Man*:

[*Vitruvian Man*]

The first is a symbol of refining the pursuit of the timeless end of deciding well (Wisdom) and the second is a symbol of a refinement of classical knowledge (the techniques of first-century BCE Roman engineer Vitruvius). The first is a symbol of renaissance and the second is a symbol of the Renaissance.”

Chapter 1, end

Added the following section:

“Overview

The spirit of our age concerns breaking unwieldy wholes into parts in order to solve problems better. A major danger in breaking wholes into parts is forgetting to consider the infinitely greater whole, which is important not only in philosophy (the induction problem) and physics (the entanglement problem), but also in economics (the learning problem). Although complete knowledge of this whole will remain forever beyond our grasp, we must not pass over it in silence. Expanding the scope of the problems we face helps us find better problems to solve. When we expand the scope of these problems to the limits of imagination, a structure of values independent of beliefs and circumstances emerges. Understanding the process by which we best progress toward these invariant ends can help us progress ever more readily.”

Chapter 2, Invariant Tools for Living Well, entire section

Changed “invariant” to “timeless” in all (4 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, Wealth, entire section

Removed all italics.

Chapter 2, Timeless Tools for Living Well, second paragraph, footnote, last two sentences

“The “recursionist” approach to economics put forth in this work competes against the Austrian and Marxist schools in describing the world as it is in the process of becoming and prescribing the world as it ought to be. Note that the difference between tools for describing the world as it is in the process of becoming and tools for prescribing the world as it ought to be is the reasonable claim that we ought to live well.”

were changed to:

“The “recursionist” approach to economics put forth in this work competes against the Austrian and Marxist schools in describing the world as it is in the process of becoming. Given that we ought to live well, it also competes against these two schools in prescribing the world as it ought to be.”

Chapter 2, Timeless Tools for Living Well, last paragraph

Changed “the way that the inexhaustibility of knowledge useful in living well creates symmetry in deciding well” to “the unity of virtue” in the last sentence.

Chapter 2, *Pleasure and Pain*, fifth paragraph

Changed “complete pleasure (ecstasy)” to “ecstasy (complete pleasure)” in the last sentence.

Chapter 2, *Pleasure and Pain*, last paragraph

Changed “; cause overwhelming emotions and appetites; retard learning; and, in cases of panic and delirium, impair reason” to “, impair reason, and retard learning” in the second sentence.

Chapter 2, *Three Common Mistakes*, last paragraph

Changed “, a designer handbag was produced off the books, or” to “or” in the second sentence.

Chapter 3, *Contemplating the Way Forward*, last paragraph

Changed “processes” to “processes for deciding well” in the second sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, first paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**programmed** rules” to “rules” in the third sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, third paragraph

Changed “**2012**” to “**today**” in the first sentence.

Changed “*biological*” to “*modern biological*” in the last sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph

Changed “**means of**” to “**approach to**” in the last sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph, footnote, last five sentences

“From the multiple-frame view, it takes us from the realm of mathematics to the realm of science. We best address the problem of computing π (well) by pursuing the timeless end of deciding well. Following this line of thinking, **there is little difference between computing the value of π and pursuing Wisdom. The timeless end of computing π (well) is a complex structure of knowledge rather than a simple number. Further**, refining the process of computing the value of π (well) is part of the process of computing the value of π (well).”

were changed to:

“ From the multiple-frame view, it takes us from the realm of mathematics to the realm of **self-referential** science. We best address the problem of computing π (well) by pursuing the timeless end of deciding well. Following this line of thinking, refining the process of computing the value of π (well) is part of the process of computing the value of π (well). **Further, the timeless end of computing π (well) is a complex structure of knowledge rather than a simple number.**”

Chapter 3, *Three Approaches to Policy*, second paragraph

Changed “biological” to “modern biological” in the first sentence.

Chapter 3, *Public Order*, entire subsection

Changed “**invariant**” to “**timeless**” in all (2 occurrences).

Chapter 3, *Public Order*, second paragraph

Changed “biological” to “modern biological” in the first sentence.

Chapter 3, *Public Entropy*, third paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**about** how” to “**for** how” in the fifth sentence.

Chapter 3, *Public Entropy*, last paragraph, footnote, last sentence

“**For more about inducing the creation of useful knowledge, see Appendix B.**”

was deleted.

Chapter 3, *Forward-Looking Science*, title

Changed “**Forward-Looking**” to “**Decision.**”

Chapter 3, *Decision Science*, sixth paragraph

Changed “**the world**” to “**deciding well**” in the fourth sentence.

Chapter 3, *Decision Science*, seventh paragraph, last two sentences

“These coherent sets concern **the world not as it currently is, but rather as it is in the process of becoming. They concern** not the world as we find it, but rather the world as we may form it.”

were changed to:

“These coherent sets concern not the world as we find it, but rather the world as we may form it.”

Chapter 3, *Decision Science*, eighth paragraph, first footnote

Changed “**battalion**” to “**company**” in all (2 occurrences).

Changed “**raw recruits**” to “**poorly-trained, unseasoned soldiers**” in the third sentence.

Changed “**raw recruits**” to “**these soldiers**” and “highly trained **and** seasoned” to “highly-trained, seasoned soldiers” in the fourth sentence.

Chapter 3, *Decision Science*, last paragraph

Changed “**expected net present value¹¹**” to “**current certainty equivalent¹¹**” in the third sentence (2 occurrences).

“¹¹ **Expected net present value is a common measure of the current value of uncertain future cash flows. More beautiful measures use a risk-preference function rather than the expected value function to reduce uncertain to certain cash flows and a yield-curve rather than a single interest rate to discount future cash flows.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“¹¹ A certainty equivalent is a measure of uncertain cash flows that considers the decider’s risk preferences. Consider a bet involving an even chance of winning \$1,000,200 or losing \$1,000,000. A risk-neutral decider would value this bet at \$100, which is the expected value of this bet ($0.5 * \$1,000,200 - 0.5 * \$1,000,000$). A risk-avoiding decider in this situation would value this bet at less than \$100. A risk-seeking decider in this situation would value it at more than \$100.”

Chapter 3, The Elephant in the Room, first paragraph

Inserted the following paragraphs:

“All living beings naturally seek to order their bodies and environments to suit their needs. They do so by taking order into their environment and by casting disorder from it. For the world as a whole, the amount of order decreases over time. Hence, the source of order that makes life as we know it possible is the order at the beginning of the world. The odds against our world being as ordered as it appears to have been in the beginning are in the realm that mathematicians consider to be practically infinite.¹⁷”

“From a theistic view, we were lucky to have been born into a world created to be conducive to life. From an atheistic view, we were extremely lucky to have been born into a world conducive to life. From the multiple-frame view, we may never know for certain whether our world was created, one of a practically infinite number of accidental worlds, or something else. However, we can know with great certainty that we ought to pay for the privilege of being born into a world conducive to living our life well by paying forward the debt we owe to the living beings that made possible living our life well. We best do so by deciding well.”

“¹⁷ In a lecture given to Oxford University’s Newton Institute on November 7th, 2006 mathematician Roger Penrose estimated the odds against our universe being as ordered as it appears to have been at the big bang to be at least ten-to-the-ten-to-the-one-hundred-and-twenty-third power to one against. A video of this lecture is available online at <http://www.newton.ac.uk/webseminars/pg+ws/2005/gmr/gmrw04/1107/penrose/index.html> (22 December 2012).”

Chapter 3, The Elephant in the Room, new third paragraph

Changed “invariant” to “invariant **ends**” in the first sentence.

Chapter 4, Refining Everyday Thinking, section

Removed the Venn diagram and references to the Venn diagram.

Chapter 4, *Recursivity*, second paragraph, fourth and fifth sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the **Copenhagen** view of **physics**, quantum mechanics is the lowest level of abstraction **that we can imagine**. Searching for models that explain **causation** on the level of quantum mechanics **on a lower level wastes resources**.”

were changed to:

“From the view of **people who believe that** quantum mechanics is the lowest level of abstraction, **searching for models that explain the behavior of objects** on the level of quantum mechanics is foolish.”

Chapter 4, *Academic Fields*, fourth paragraph, last two sentences

“For example, we would not exclude **consciousness from the study of quantum mechanics, hence would see more clearly such things as the conflict between the absolute time of quantum mechanics (entangled states of the world) and the relativistic time of Einstein’s theory of invariance. The true sciences would include mathematics as the science of patterns.**”⁴

“⁴ For more about mathematics as the science of patterns, see Appendix B.”

were changed to:

“For example, we would not exclude **positive-sum game theory from biological evolution**.”

Chapter 4, *Academic Fields*, last paragraph

Changed “**endless**” to “**self-similar, self-referential, multiple-frame**” in the first sentence.

Chapter 4, *Refining Invariant Science*, last paragraph, first sentence

Added the footnote:

“⁴ For mathematics to be a basis of a self-referential process of refining everyday thinking, mathematics must be a part of this process. From the multiple-frame view, the true sciences would include mathematics as the science of patterns. For more about this, see Appendix A.”

Chapter 4, *Refining Deciding Well*, title

Changed title to “***Refining Finding Problems to Solve***.”

Chapter 4, *Modern Policy Mistakes*, third paragraph

Changed “**one of the greatest advances in human history**” to “**this great advance**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, *A Sovereign Story for Deciding Well*, last paragraph, footnote

Changed “**fabric of** civilization” to “civilization” in the second sentence.

Chapter 5, *Pursue Invariant, not Temporal Order*, entire subsection

Changed “**invariant**” to “**timeless**” in all (3 occurrences).

Chapter 5, *Pursue Invariant, not Temporal Order*, second paragraph

Changed “**fabric of** civilization” to “civilization” in the second sentence.

Chapter 5, *Good Policies*, first paragraph, footnote

Changed “(e.g., **expert systems**, fractal geometry, **and inexpensive information processing**)” to “, e.g., fractal geometry,” in the second sentence.

Changed “do so” to “**invest in inventing means of doing** so” in the third sentence.

Chapter 5, *Civil Faith*, first paragraph

Changed “**invariant** liberalism” back to “**timeless** liberalism” in all (2 occurrences).

Changed “may its” to “may **call** its” in the second sentence.

Chapter 6, *Worldly Benefits of Detachment*, last paragraph

Changed “consciousness and **our**” to “**our** consciousness and” in the third sentence.

Chapter 6, *Einstein's Twin Warnings*, entire subsection

Promoted this subsection to a section.

Chapter 6, *A Common Timeless End*, last paragraph, last three sentences

“From the multiple-frame view, we **only need to choose between living well and linking well when we lack the resources to pursue both. Pursuing the timeless end of deciding well provides us with the resources to pursue both. We** best settle this conflict by having these beliefs compete in the marketplace of ideas for helping us decide well.”

were changed to:

“From the multiple-frame view, we best settle this conflict by having these beliefs compete in the marketplace of ideas for helping us decide well.”

Chapter 7, title quote, footnote (heading reference)

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**by the courtesy name**” to “**as**” in the last sentence.

Chapter 7, *An Extraordinary Anomaly*, second paragraph

Changed “**fail to address our ignorance rationally, and so act irrationally**” to “**act unreasonably**” in the last sentence.

Chapter 7, *An Extraordinary Anomaly*, last paragraph

Changed “**invariant values and**” to “**how well they ring true with all that we currently know about pursuing the timeless end of deciding well and to judge**” in the first sentence.

Chapter 7, *OODA Loop Analysis*, last paragraph

Changed “**”** by” to “**. It included purposely**” in the second sentence.

Added “**in Saddam Hussein**” at the end of the new third sentence.

Changed “Commandant **General**” by” to “Commandant” in the new fourth sentence.

Chapter 7, *Boyd's Grand Strategy*, last paragraph

Changed “biological” to “**modern biological**” in the first sentence.

Chapter 7, *Boyd's Grand Strategy*, last paragraph, last sentence

“**They are things that we invent rather than discover.**¹⁴”

“¹⁴ Boyd saw patterns in the way we compete to live well. He wanted to explain these patterns using a decision-cycle model that included learning-by-doing. Regrettably, he based his model on modern interpretations of biological evolution, quantum mechanics, and Gödel’s incompleteness theorems. We see the resulting sophistry most clearly in his essay *Destruction and Creation*. From the multiple-frame view, **indispensability in deciding well makes intellectual tools something we discover rather than invent. Like mathematics and logic**, the reason that binds the boundless factors of deciding well together into a coherent whole appears to be indispensable in deciding well. **As we shall see in the next chapter, we can never prove formally that we have found the best means of deciding well. Hence, we can never prove indispensability in deciding well. However, we can seek to disprove experimentally that the tools that ring truest with all that we currently know about deciding well are indispensable in deciding well by acting as if these tools are indispensable in deciding well.**”

was changed to:

“¹⁴”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹⁴ Boyd saw patterns in the way we compete to live well. He wanted to explain these patterns using a decision-cycle model that included learning-by-doing. Regrettably, he based his model on modern interpretations of biological evolution, quantum mechanics, and Gödel’s incompleteness theorems. We see the resulting sophistry most clearly in his essay *Destruction and Creation*. From the multiple-frame view, the reason that binds the boundless factors of deciding well together into a coherent whole appears to be indispensable in deciding well **as logic and mathematics are.**”

Chapter 7, *The Grandest Possible*, first paragraph

Changed “grander, **nobler**” to “grander” in the second sentence.

Chapter 7, *The Scope of Biological Evolution*, first and second paragraphs

“From the view of modern biology, living beings cooperate well in order to compete well for resources useful in living well. Those living beings who *always* seek to cooperate before they seek to compete, **to look for win–win solutions to resource problems before they seek to compete over resources,** are anomalies. Our national goal of improving our fitness to cope with and shape our environment is superior to our grand strategy.

“From the multiple-frame view, living beings also compete **well** in order to cooperate **well** in living well. Those living beings that seek to compete over resources before they seek to cooperate in living well are the special case of beings that have not yet developed the wisdom to do otherwise. Our national goal is the grand strategy of deciding well using the multiple-frame approach to deciding well. **Further, recent discoveries show us that what happens to us may change not only how our genes work, but also how our descendants’ genes work. The line between genetic and cultural evolution is not distinct as most modern evolutionary biologists would have us believe.** As intelligent beings bound to live well in the flow of time, we ought to describe the world in ways that are most useful to intelligent beings bound to live well in the flow of time. We ought to take a boundless view of biological evolution.”

were changed to:

“From the view of modern biology, living beings cooperate in order to compete well for resources useful in living well. Those living beings who always seek to cooperate before they seek to compete are anomalies. Our national goal of improving our fitness to cope with and shape our environment is superior to our grand strategy. **We distinguish between biological and cultural evolution.**

“From the multiple-frame view, living beings **not only cooperate in order to compete well for resources useful in living well, but also** compete in order to cooperate in living well. Those living beings that seek to compete before they seek to cooperate are the special case of beings that have not yet developed the wisdom to do otherwise. Our

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

national goal is the grand strategy of deciding well using the multiple-frame approach to deciding well. **Our genetics and culture coevolve.**¹⁷

“As intelligent beings bound to live well in the flow of time, we ought to describe the world in ways that are most useful to intelligent beings bound to live well in the flow of time. We ought to take a boundless view of biological evolution.”

“¹⁷ Recent discoveries show us that what happens to us may change not only how our genes work, but also how our descendants’ genes work. The line between genetic and cultural evolution is not distinct as most modern evolutionary biologists would have us believe.”

Chapter 7, The Scope of Biological Evolution, last two paragraphs

“All living beings naturally seek to order their bodies and environments to suit their needs. They do so by taking order into their environment and by discarding disorder from it. For the world as a whole, the amount of order decreases over time. Hence, the source of order that makes life as we know it possible is the order at the beginning of the world. The odds against our world being as ordered as it appears to have been in the beginning are in the realm that mathematicians consider to be practically infinite.”¹⁷

“From a theistic view, we were lucky to have been born into a world created to be conducive to life. From an atheistic view, we were extremely lucky to have been born into a world conducive to life. From the multiple-frame view, we may never know for certain whether our world was created, one of a practically infinite number of accidental worlds, or something else. However, we can know with great certainty that we ought to pay for the privilege of being born into a world conducive to living our life well by paying forward the debt we owe to the living beings that made possible living our life well. We best do so by pursuing the transcendental end of zero public entropy, which calls for us to pursue the boundless factors of deciding well.”

“¹⁷ Mathematician Roger Penrose estimated the odds against our universe being as ordered as it appears to have been at the big bang to be at least ten-to-the-ten-to-the-one-hundred-and-twenty-third power to one against. He made this estimate in a lecture titled “Before the Big Bang? A New Perspective on the Weyl Curvature Hypothesis” at Oxford University’s Newton Institute on November 7th, 2006. A video of this lecture is available online at <http://www.newton.ac.uk/webseminars/pg+ws/2005/gmr/gmrw04/1107/penrose/index.html> (22 December 2012).”

were deleted.

Chapter 8, Beautiful Reason, entire chapter

Changed “frames” to “models” in all (9 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Beautiful Reason, title quote, end

“So if you look back at the history of the beginning of this century you’ll see papers by logicians studying the foundations of mathematics in which they had programming languages. Now you look back and you say this is clearly a programming language! If you look at Turing’s work, you see, of course, there’s a machine language. If you look at papers by Alonzo Church, you see the lambda calculus, which is a functional programming language. If you look at Gödel’s original paper, you see what to me looks like LISP. It’s very close to LISP. It begs to be rewritten in LISP.” — *Gregory Chaitin*¹”

¹ Introductory remarks of a lecture given given by Gregory Chaitin at the Carnegie Melon University’s School of Computer Science on March 2, 2000. A video of this lecture is available online at <<http://www.youtube.com/watch?v=HLPO-RTFU2o>> (30 July 2012).”

was changed to:

““The safest general characterization of the European philosophical tradition is that it consists of a series of footnotes to Plato. I do not mean the systematic scheme of thought which scholars have doubtfully extracted from his writings. I allude to the wealth of general ideas scattered through them.” — *Alfred North Whitehead*¹

¹ Whitehead, A. N. *Process and Reality* (New York: Free Press, 1979), p. 39.”

Chapter 8, Beautiful Reason, fourth paragraph

Changed “Socrates” to “**Plato’s** Socrates” in the last sentence.

Chapter 8, Beautiful Reason, fourth paragraph, footnote

² Reason, so conceived, does not consider the unity of the virtues. In Plato’s early-to-middle transitional dialogue *Protagoras*, Socrates argues for the unity of virtue.”

was deleted.

Chapter 8, Beautiful Reason, fifth paragraph

Changed “but also the models” to “but also the **coherent sets of** models” in the second sentence.

Changed “**coherent** sets of models” to “sets of models” in the last sentence.

Chapter 8, Beautiful Reason, sixth paragraph

Re-added a footnote (now including the title of the lecture) which was deleted from the end of the first sentence on July 30, 2012:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The inspiration for this thought experiment was an observation that mathematician Gregory Chaitin made in the introductory remarks of a lecture titled “A Century of Controversy Over the Foundations of Mathematics” that he gave at the Carnegie Mellon University’s School of Computer Science on March 2, 2000: “So if you look back at the history of the beginning of this century you’ll see papers by logicians studying the foundations of mathematics in which they had programming languages. Now you look back and you say this is clearly a programming language! If you look at Turing’s work, you see, of course, there’s a machine language. If you look at papers by Alonzo Church, you see the lambda calculus, which is a functional programming language. If you look at Gödel’s original paper, you see what to me looks like LISP. It’s very close to LISP. It begs to be rewritten in LISP.” A video of this lecture is available online at <<http://www.youtube.com/watch?v=HLPO-RTFU2o>> (30 March 2013).”

Changed “to prove” to “to prove **formally**” in the fourth sentence.

Changed “finesse **appears to be**” to ““**genetic**” finesse **is**” in the last sentence of the last footnote.

Chapter 8, Beautiful Reason, last paragraph, second sentence

“From the **invariant** view of believing well, **which is the view of believing well ever more wisely**, we ought to choose the one that rings the truest with all that we currently know about believing well ever more wisely.”

was changed to:

“From the **multiple-frame** view of believing well, we ought to choose the one that rings the truest with all that we currently know about believing well ever more wisely.”

Chapter 8, Complete Reason, first paragraph, first footnote, first five sentences

“Consider the following claims. **First**, for any set of rules for pursuing the Truth, we will either discover or never discover the Truth. **Second**, if we discover the Truth, we prove that the set of rules is complete. **Third**, if we never discover the Truth, we never prove that the set of rules is complete. **Fourth**, pursuing the Truth is an endless process.”

were changed to:

“Consider the following claims: (1) for any set of rules for pursuing the Truth, we will either discover or never discover the Truth; (2) if we discover the Truth, we prove that the set of rules is complete; (3) if we never discover the Truth, we never prove that the set of rules is complete; and (4) pursuing the Truth is an endless process.”

Chapter 8, Complete Reason, first paragraph, second footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “*science includes all of the interwoven pursuits of the*” to “*it includes pursuing all*” in the last sentence.

Chapter 8, Summary, entire section

“Summary

The spirit of our age concerns breaking unwieldy wholes into parts in order to solve problems better. A major danger in breaking wholes into parts is forgetting to consider the infinitely greater whole, which is important not only in philosophy (the induction problem) and in physics (the entanglement and observer problems), but also in economics (the learning problem). Although complete knowledge of this whole will remain forever beyond our grasp, we must not pass over it in silence. Expanding the scope of the problems we face helps us find better problems to solve. When we expand the scope of these problems to the limits of imagination, a structure of values independent of beliefs and circumstances emerges. Understanding the process by which we best progress toward these invariant ends can help us progress ever more readily.”

was replaced by:

“Eudaemonia

Pursuing the timeless end of deciding well using the multiple-frame approach to deciding well involves building superrational frameworks for supporting our current beliefs. By themselves, these frameworks are useless. We make them useful by adding what we currently believe we know about pursuing the boundless factors of deciding well to them. Missing from this structure is a means of understanding constraints on our ability to receive and process information unconsciously. To decide well, we need to consider these constraints. Both as humans and as people living with humans, we need to consider the human condition.

“We may think of our minds (psyches/souls) as having parts that provide us with information. We may call these parts *daemons* after the term that computer scientists use to describe processes that run in the background. Some of our daemons use processes of which we can be fully aware, such as consciously formed habits. Others use processes of which we can never be aware, such as how we turn physical contact with airborne molecules into signals our minds perceive as smells. Between these two extremes are a broad range of daemons that use processes of which we can learn to be more aware, such as why things ring true or false to us.

“We ought to trust the information we receive from our daemons only to the degree that this information rings true with all else that we currently know about pursuing the timeless end of deciding well. If the information our daemons provide us conflicts with our reason, we ought to trust our reason to determine whether this information is useful in deciding well.

“Deciding well calls for us to govern our minds well, which in turn calls for us to decide well. We may call the timeless end of governing our minds well *Eudaemonia*.⁶ Including

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Eudaemonia in our set of boundless factors of deciding well provides us with a means of thinking about the parts of our minds that process information unconsciously.⁷

“Today, we are experiencing an unprecedented increase in our capacity for processing information outside of ourselves. Increasing this capacity tends to increase the pace of change, which in turn increases our need for a sense of beauty based on pursuing the boundless factors of deciding well. In perfecting this sense of beauty, we learn ever more about governing our minds well.”

“⁶ Modern translations of eudaemonia include happiness, well-being, and flourishing. All of these concern living well rather than governing our minds well. Eudaemonia literally means having a good attending or indwelling spirit. Following this literal meaning, the timeless end of governing our minds well means having a perfectly good attending or indwelling spirit, a spirit ruled by Reason. Given our ignorance of Wisdom, the pursuits of the timeless end of living well (Happiness) and of governing our minds well (Eudaemonia), though interwoven, are not one and the same.”

“⁷ Plato’s Socrates teaches us that when we find ugliness in reasoning, we ought to seek to find the source of this ugliness. When we read in *The Republic* that political leaders ought to lie about the true nature of their eugenics program and to exile masses of people, we ought to look for what mistakes in reasoning led to these ugly prescriptions. From the bounded vision of governing ourselves well that Plato put forth in *The Republic*, parts of the human mind are like parts of the polis (city-state). In an ideal state, all people work together for the good of the state. In an ideal human mind, all parts work together for the good of the human. From the boundless view of governing ourselves well put forth in this work, parts of the human mind are like parts of the whole of life. In an ideal state, all people work together in deciding well. In an ideal mind, all parts work together in deciding well. *Plato’s bounded view of politics conflicts with his boundless (hydra-lion-human) view of reason.*”

Appendix A, entire appendix

Made significant changes, including removing all analysis relating to apeirogons. The net result is a version that is a page shorter and more to the point.

Appendix B, *Folding in Production Processes*, first paragraph

Changed “assembly” to “**molding**, assembly, **packaging**” in the first sentence.

Appendix B, *Smoothing Flows*, first paragraph, last sentence

“For those who understand the system, the smoothing process is more impressive than this smooth flow.”

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix B, *Smoothing Flows*, last paragraph, end

Added the paragraph:

“For those who understand the system, the smoothing process is more impressive than this smooth flow.”

Appendix B, *Looking Forward*, first paragraph

Changed “The” to “Note that the” in the first sentence.

Changed “ever” to “even” in the last sentence.

Demoted this subsection to the end of the first footnote in the next section.

Appendix B, *Rapid Tool Setting*, first paragraph

Changed “simply removes one” to “removes one such” in the fifth sentence.

Appendix B, *Less is More*, first paragraph

Changed “solve” to “address” in the third sentence.

Changed “common sense” to “reasonable” in the fifth sentence.

Changes in Version 2013.04.19

Chapter 1, *Timeless Reason*, second paragraph

Changed “marginalist” to “modern” in the second sentence.

Chapter 1, *Timeless Beauty*, first paragraph

Changed “this timeless concept of reason” to “the timeless concept of reason put forth in this work” in the first sentence.

Chapter 1, *Timeless Beauty*, third paragraph

Changed “library” to “room” in the first sentence.

Chapter 1, *Timeless Beauty*, eighth paragraph

Changed “dynamism of the oculus” to “dynamism of the image above the oculus” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Timeless Beauty, ninth paragraph

Changed “A. Square” to “**Flatlander** A. Square” in the fifth sentence.

Chapter 1, Timeless Beauty, last paragraph

Changed “symbol of renaissance” to “**timeless** symbol of renaissance” and “symbol of the Renaissance” to “**modern** symbol of the Renaissance” in the last sentence.

Chapter 1, Timeless Beauty, entire section

Demoted this section to an appendix (C) titled “**Renaissance Art.**” Introduced this section with quotes from Protagoras and Plato's Socrates.

Chapter 1, Overview, entire section

“**Overview**

The spirit of our age concerns breaking unwieldy wholes into parts in order to solve problems better. A major danger in breaking wholes into parts is forgetting to consider the infinitely greater whole, which is important not only in philosophy (the induction problem) and physics (the entanglement problem), but also in economics (the learning problem). Although complete knowledge of this whole will remain forever beyond our grasp, we must not pass over it in silence. Expanding the scope of the problems we face helps us find better problems to solve. When we expand the scope of these problems to the limits of imagination, a structure of values independent of beliefs and circumstances emerges. Understanding the process by which we best progress toward these invariant ends can help us progress ever more readily.”

was deleted.

Chapter 3, Pursuing the Ring of Truth, last paragraph

Changed “**Beauty is the quality of objects whose contemplation**” to “**Contemplating truly beautiful things**” in the first sentence.

Chapter 3, Pursuing the Ring of Truth, last paragraph, end

Added the following footnote:

“² **For more about the relation between beauty and enlightenment, see Appendix C.**”

Appendix C, last paragraph, end

Added the following sentence: “**Which is the better tool for helping us live well?**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2013.04.23

Chapter 3, *Public Entropy*, last two paragraphs

“Extending this prescription to **the whole of science**, we ought to want a set of partial descriptions of the world, each member of which contains instructions for how we ought to use it. These descriptions and instructions ought to be as simple as possible, but not simpler; and the set of these descriptions and instructions ought to be as small as possible, but not smaller.⁸

“We can use the concept of public entropy to help us **see science not only as a source of partial descriptions of the world, but also as a means of linking these** partial descriptions into an ever more coherent whole that we can use to find ever better problems to solve.⁹ We can begin by using **this concept** to relate quantum mechanics to deciding well.”

were changed to:

“Extending this prescription to **our strategy for deciding well**, we ought to want a set of partial descriptions of the world, each member of which contains instructions for how we ought to use it.⁸ These descriptions and instructions ought to be as simple as possible, but not simpler; and the set of these descriptions and instructions ought to be as small as possible, but not smaller.

“We can use the concept of public entropy to help us link partial descriptions **of the world** into an ever more coherent whole that we can use to find ever better problems to solve.⁹ We can begin by using **it** to relate quantum mechanics to deciding well.”

Chapter 3, *The Elephant in the Room*, third paragraph

Changed “**invariant ends and** religious values” to “religious values **and boundless factors of deciding well**” in the first sentence

Changes in Version 2013.04.24

Preface, seventh paragraph

Changed “the” to “**natural (invariant) science, in** the” in the first sentence.

Chapter 4, *Academic Fields*, last paragraph

Changed “*invariant science*” to “**natural (invariant) science**” in the first sentence.

Chapter 4, *Refining Invariant Science*, title

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed title to “Refining **Natural** Science.”

Chapter 4, Refining Natural Science, second paragraph

Changed “models we use to **explain deciding well**” to “**coherent sets of** models **that** we use to **find problems to solve**” in the first sentence.

Changed “models” to “**sets of** models” in the second sentence.

Changed “**this** set” to “**these sets**” in the third sentence.

Chapter 4, *Refining Finding Problems to Solve*, second paragraph, last footnote, second through fourth sentences

“Our needs for such things as nutrition and water emerge on the level of our physical bodies. Our needs for such things as affection and esteem emerge on the level of our minds. Our needs for such things as the longing to link with something infinitely greater than ourselves emerge on the level of our spirits.”

were deleted.

Chapter 4, *Modern Policy Mistakes*, fifth paragraph, second sentence

“**Over time**, these accidents **pile up** like blocks of ice in a near-freezing river.”

was changed to:

“**These accidents are** like blocks of ice in a near-freezing river.”

Chapter 4, Testing Invariant Science, title

Changed title to “Testing **Natural** Science.”

Chapter 4, Testing Natural Science, first paragraph

Changed “**believing** well” to “**deciding** well” in the second sentence.

Chapter 5, Sovereignty, first paragraph

Changed “, **which we may also call governing ourselves well**, ” to “ ” in the first sentence.

Chapter 5, *The Explicit Experiment*, second paragraph

Changed comma-delineated phrase to semicolon-delineated block quote in the fifth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix A, The Basis of Mathematics, first paragraph, third and fourth sentences

“By definition, we can never achieve this timeless end. Hence, we can never prove formally that any tool for pursuing it is indispensable.”

were changed to:

“Because we can never know we have achieved this end, we can never prove formally that any tool for pursuing it is indispensable.”

Changes in Version 2013.04.26

Preface, fifth paragraph

Changed “a more complete concept of reason than rationality, a” to “a” in the last sentence.

Preface, sixth paragraph

Changed “current concepts of reason” to “modern concept of reason as rationality (the reason of geometry, mathematics, and logic)” in the first sentence.

Chapter 5, *The Explicit Experiment*, third paragraph

Moved prepositional clause from the end to the beginning of the first sentence.

Changed “his” to “this” in the second sentence.

Chapter 6, *Heroic Death*, second paragraph, last two sentences

“The worst promote an apocalyptic vision of the future buttressed by a romantic vision of the past. They promise heaven on earth for all true believers who survive the final battle against evil.”^s

“^s Berman, Paul, *Terror and Liberalism* (New York: W. W. Norton & Company, 2003).”

were changed to:

“The worst promise heaven on earth for all true believers who survive the final battle against evil.”

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the multiple-frame view, the reason that binds the boundless factors of deciding well together into a coherent whole appears to be indispensable in deciding well as logic and mathematics are.”

was deleted.

Chapter 7, The Scope of Biological Evolution, last paragraph

Changed “evolution” to “evolution, a view in which the inexhaustibility of knowledge plays a guiding role” in the last sentence.

Changes in Version 2013.04.29

Chapter 2, Timeless Tools for Living Well, first paragraph

Changed “multiple-frame approach to deciding well put forth in this work” to “multiple-frame approach” in the third sentence.

Chapter 2, Timeless Tools for Living Well, last paragraph

Changed “multiple-frame approach to deciding well” to “multiple-frame approach” in the last sentence.

Chapter 5, A Sovereign Story for Deciding Well, second paragraph

Changed “multiple-frame approach to deciding well” to “multiple-frame approach” in the first sentence.

Chapter 5, Pursue Timeless, not Temporal Order, first paragraph

Changed “multiple-frame approach to deciding well” to “multiple-frame approach” in the last sentence.

Chapter 5, Civil Faith, first paragraph

Changed “multiple-frame approach to governing well” to “multiple-frame approach” in the second sentence.

Chapter 7, The Scope of Biological Evolution, second paragraph

Changed “multiple-frame approach to deciding well” to “multiple-frame approach” in the third sentence.

Chapter 8, Beautiful Reason, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “multiple-frame view **of believing well**” to “multiple-frame view” in the second sentence.

Chapter 8, Complete Reason, first paragraph, last footnote

Changed “multiple-frame approach **to believing well**” to “multiple-frame approach” in the third sentence.

Chapter 8, Eudaimonia, first paragraph

Changed “multiple-frame approach **to deciding well**” to “multiple-frame approach” in the first sentence.

Chapter 8, Eudaimonia, third paragraph

“We ought to trust the information we receive from our daemons only to the degree that this information rings true with all else that we currently know about pursuing the timeless end of deciding well. We ought to trust our reason. To trust our reason calls for us to trust the foundations of our reason, which in turn calls for us to trust the foundations of these foundations, which in turn calls for us to trust the foundations of these foundations, and so on to infinity. We best address this infinitely large problem by deciding well using the multiple-frame approach.”

was deleted.

Chapter 8, Eudaimonia, new third paragraph, first sentence

“Deciding well calls for us to **govern our minds well, which in turn calls for us to decide well.**”

was changed to:

“The multiple-frame approach to deciding well calls for us to reason well. At the end of Book IX of *The Republic*, Plato defined reason as the endless process of governing our minds well.⁶”

“⁶ For more about Plato’s boundless view of reason, see Appendix C. Regrettably, in Book II Plato also provided us with a bounded view of governing our minds well by comparing governing our minds well to governing ourselves well: In an ideal state, all citizens work together for the good of the state. In an ideal human mind, all parts work together for the good of the human. We ought to take the boundless view: In the ideal state, all citizens work together in deciding well. In the ideal human mind, all parts work together in deciding well.”

Chapter 8, Eudaimonia, new third paragraph, second footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“ Plato’s Socrates teaches us that when we find ugliness in reasoning, we ought to seek to find the source of this ugliness. When we read in *The Republic* that political leaders ought to lie about the true nature of their eugenics program and to exile masses of people, we ought to look for what mistakes in reasoning led to these ugly prescriptions. From the bounded vision of governing ourselves well that Plato put forth in *The Republic*, parts of the human mind are like parts of the polis (city-state). In an ideal state, all people work together for the good of the state. In an ideal human mind, all parts work together for the good of the human. From the boundless view of governing ourselves well put forth in this work, parts of the human mind are like parts of the whole of life. In an ideal state, all people work together in deciding well. In an ideal mind, all parts work together in deciding well. *Plato’s bounded view of politics conflicts with his boundless (hydra-lion-human) view of reason.*”

was deleted.”

Chapter 8, Eudaemonia, last paragraph

“Today, we are experiencing an unprecedented increase in our capacity for processing information outside of ourselves. Increasing this capacity tends to increase the pace of change, which in turn increases our need for a sense of beauty based on pursuing the boundless factors of deciding well. In perfecting this sense of beauty, we learn ever more about governing our minds well.”

was deleted.

Appendix C, last paragraph, second through last sentences

“The first is a symbol of refining **the pursuit of the timeless end of** deciding well (**Wisdom**) and the second is a symbol of a refinement of **classical knowledge** (the **techniques** of first-century BCE Roman engineer Vitruvius). **The first is a timeless symbol of renaissance and the second is a modern symbol of the Renaissance.** Which is the better **symbol** for helping us live well?”

were changed to:

“The first is a **timeless symbol of renaissance**, of refining deciding well. **The second is a modern symbol of the Renaissance**, of a refinement of the **knowledge** of first-century BCE Roman engineer Vitruvius. Which is the better **tool** for helping us live well?”

Changes in Version 2013.04.30

Entire document

Updated all website reference dates.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, *Tools for Pursuing Pleasure and Joy*, last paragraph, last five sentences

“When we have too much *yang*, we pursue pleasure too much. When we have too much *yin*, we pursue joy too much. When *yin* and *yang* are in balance, we pursue the virtuous circle of pleasure and joy. From the Western tradition, we need tools to help us know when our emotions and appetites overwhelm our faculties in order to help us know when we ought to abandon deliberation and decision rules for discipline. One solution to this problem is a list of warning signals: lust, gluttony, greed, sloth, wrath, envy, and pride.”

were changed to:

“When *yin* and *yang* are in balance, we pursue the virtuous circle of pleasure and joy.

“Regardless of whether we choose an active or a contemplative life, we need tools to help us know when our emotions and appetites overwhelm our ability to reason well. The Western tradition provides us with a list of warning signals: lust, gluttony, greed, sloth, wrath, envy, and pride.”

Chapter 3, *Decision Science*, seventh paragraph

Changed “existence” to “the world” in all (4 occurrences).

Changed “find it” to “currently find it” in the last sentence.

Chapter 3, *Decision Science*, eighth paragraph, first footnote, fourth sentence

“This belief rests on the belief that we ought to test the most beautiful of competing beliefs.”

was deleted.

Chapter 3, *Decision Science*, eighth paragraph, second footnote, last two sentences

“A risk-avoiding decider in this situation would value this bet at less than \$100. A risk-seeking decider in this situation would value it at more than \$100.”

were changed to:

“A risk-avoiding decider would value this bet at less than \$100 and a risk-seeking one would value it at more than \$100.”

Chapter 3, *Decision Science*, eighth paragraph, first footnote, end

Added the sentence: “It rings truer with all that we currently believe we know about deciding well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Decision Science*, last paragraph, last two sentences

“The better **solution to the** problem of **whether to invest in this research program** is the decision science **solution**. It rings true with **more of what** we currently believe we know **and do not yet know about the world.**”

were changed to:

“The better **formal** problem **to solve** is the decision science **problem**. It rings truer with **all that** we currently believe we know **about deciding well.**”

Chapter 3, *The Elephant in the Room*, last three paragraphs

“One of the most beautiful things to emerge from deciding well is the coincidence of religious values and boundless factors of deciding well. The essential atheistic explanation of this coincidence is simple and straightforward. We evolved to have a religious need to become a part of something infinitely greater than ourselves. We satisfy this need by deciding well. We collectively refine our means of deciding well by deciding well over time. In the fullness of time, we discover and use the multiple-frame approach to deciding well.

“The essential theistic explanation of this coincidence is as simple and straightforward. The Creator created what we call the laws of nature. These laws include the need for life to flourish. We flourish by deciding well. We collectively refine our means of deciding well by deciding well over time. In the fullness of time, we discover and use the multiple-frame approach to deciding well.

“Although these two essential explanations differ in their assumptions, they share the same means. Regardless of what core set of currently unfalsified beliefs, what personal faith, we choose to help us find the best problem to solve, the essential process of deciding well is the same for all of us. We are all as blind men seeking to know an infinitely large elephant.”

were appended to the end of last sentence of the preceding paragraph and changed to:

“**using the multiple-frame approach, which calls for us to recognize that we are all as blind men seeking to know an infinitely large elephant.**”

Chapter 7, *The Scope of Biological Evolution*, last paragraph

Changed “**evolution, a view in which the inexhaustibility of knowledge plays a guiding role**” back to “evolution” in the last sentence.

Chapter 8, *Beautiful Reason*, sixth paragraph, second footnote

Changed “**is**” to “**may be**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Eudaemonia, last paragraph, first footnote

Changed “in Book II Plato also provided us with a bounded view of governing our minds well by comparing governing our minds well to governing ourselves well” to “by likening governing our minds well to governing ourselves well in Book II of *The Republic*, Plato also provided us with a bounded view of governing our minds well” in the second sentence.

Changed “We” to “As we have seen, we” in the last sentence.

Appendix A, The Basis of Mathematics, last two paragraphs

“We can apply this reasoning to mathematics as a whole. Mathematics is the study of patterns. We use mathematics as a tool for pursuing the timeless end of deciding well. To prove that mathematics is indispensable in pursuing this timeless end, we seek to disprove the proposition that there exist some patterns that are indispensable in pursuing it. We do so by acting as if some patterns are indispensable.

“We base mathematics on the reason of the self-referential, self-similar, multiple-frame process of deciding well. We presume that the most useful tools in deciding well are the most likely to be indispensable in deciding well. When confronted with more than one solution to a mathematical problem, we choose the solution that appears to be most useful in deciding well. In doing so, we seek to disprove it is most useful in deciding well.”

were changed to:

“We can apply this reasoning to mathematics as a whole. To prove that mathematics is indispensable in deciding well, we seek to disprove the proposition that there exist some patterns that are indispensable in deciding well. We do so by acting as if some patterns are indispensable in deciding well.

“We base mathematics on the reason of deciding well. When confronted with more than one solution to a mathematical problem, we choose the solution that appears to be most useful in deciding well. In doing so, we seek to disprove it is most useful in deciding well. We presume that the most useful tools in deciding well are the most likely to be indispensable in deciding well.”

Appendix C, fourth paragraph, fifth sentence

Added the footnote:

“² A high resolution image of the entire ceiling is available online at <http://upload.wikimedia.org/wikipedia/commons/9/90/Raphael_-_Ceiling_of_the_Selling_Room.jpg> (30 April 2013).”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, seventh paragraph

Changed “self-similar **means of refining reason**” to “self-similarity” in the second to last sentence.

Appendix C, ninth paragraph

Changed “**suddenly** inspired” to “inspired” in the last sentence.

Appendix C, last paragraph

Changed “refining **deciding well**” to “**endlessly** refining **everyday thinking**” in the first sentence.

Appended paragraph to preceding paragraph.

Changes in Version 2013.05.02

Chapter 2, *Pleasure and Pain*, fifth paragraph

Changed “**ecstasy** (complete pleasure)” to “complete pleasure (**ecstasy**)” in the last sentence.

Chapter 3, *Three Approaches to Policy*, last paragraph

Changed “**wisdom that surpasses current wisdom**” to “**the timeless end of deciding well (Wisdom)**” in the last sentence.

Chapter 3, *Public Order*, last paragraph

Changed “**an** timeless” to “a timeless” in the second sentence.

Chapter 4, *Recursivity*, first paragraph

Changed “undermines” to “**eventually** undermines” in the fifth sentence.

Deleted the last sentence: “**The models we use to describe the behavior of ants do not change what ants do, but the models we use to describe our behavior tend to change what we do.**”

Chapter 4, *Recursivity*, second paragraph

“**The two-way relation between the world and the descriptions that we use to guide our actions gives rise to a wide variety of phenomena, which range from speculative bubbles**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

to complex systems of human organizations. We can think about the cause of these phenomena as the interplay of two tendencies of the descriptions that we use to guide our actions. The first is their tendency to become more popular, which, in part, is due to the inexhaustibility of knowledge. The second is their tendency to undermine the conditions on which we base them. Repeatedly using these descriptions to guide our actions without considering how our actions change reality tends to lead us ever further away from the ideal means of deciding well.”

was reduced to a footnote to the first paragraph.

Chapter 5, Civil Faith, title

Changed title to “**Timeless Liberalism.**”

Chapter 8, Eudaemonia, last paragraph

Changed “the parts” to “**how best to govern** the parts” in the last sentence.

Changed “**take** the **boundless view**” to “**decide well using** the **multiple-frame approach**” in the last sentence of the first footnote.

Changed “**ignorance**” to “**imperfect knowledge**” in the last sentence of the second footnote.

Appendix A, The Big Picture, second paragraph

Changed “**submit an answer**” to “**answer this question**” in the first sentence.

Appendix C, fourth paragraph, last footnote

“ **Taken together with the octagonal oculus, the pursuits of Beauty, Truth, Justice, and Wholeness form a Latin cross with the long member representing the factor in mind. We can clearly see this cross in the horizontal and vertical rays emanating from the symbol of the Holy Ghost (encircled dove) in the fresco below the theology circle. Looking at this fresco, the factor we have in mind is Wholeness. A high-resolution image of this fresco is available online at**
<http://upload.wikimedia.org/wikipedia/commons/1/19/Raphael_-_Disputation_of_the_Holy_Sacrament.jpg> (30 April 2013).”

was deleted.

Appendix C, fourth paragraph

Changed “**hold**” to “**push**” and “**tether**” to “**pull**” in the last sentence.

Moved the first footnote to the end of the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, fifth paragraph

Changed “**holding**” to “**pushing**” in the third sentence.

Changed “**tethering**” to “**pulling**” in the fourth sentence.

Changed “fire” to “fire, **halfway between poetry and theology,**” in the fifth sentence.

Changed “**concerns**” to “**symbolizes**” and “**our current**” to “**passionately held**” in the sixth sentence.

Changed “**pursuing** Wisdom” to “Wisdom” in the last sentence.

Moved the last sentence to the end of the footnote.

Appendix C, last paragraph, footnote

“Raphael completed the philosophy fresco without the figure of Heraclitus. Some art historians believe that he added it as a symbol of inspired genius in response to seeing Michelangelo’s **recently-completed** figure of Jeremiah on the ceiling of the Sistine Chapel. The obvious reason that Raphael did not add this **self-similar** symbol of refining **reason at the same time** is that he did not imagine it. An alternative reason is **that there was no place for it**. Replacing the putti above the oculus in the ceiling would have **better integrated the fresco dedicated to philosophy**. However, it would have harmed **the integration of the room as a whole by damaging** the relation between the ceiling and the fresco dedicated to theology, **particularly the common personification of natural phenomena that we do not yet understand.**”

was changed to:

“Raphael completed the philosophy fresco without the figure of Heraclitus. Some art historians believe that he added it as a symbol of inspired genius in response to seeing Michelangelo’s figure of Jeremiah on the ceiling of the Sistine Chapel. The obvious reason that Raphael did not add this symbol of refining everyday thinking is that he did not imagine it. An alternative reason is **making room for it would have harmed the integration of the room as a whole**. For example, replacing the **papal symbol and putti above the oculus in the ceiling would have harmed** the relation between the ceiling and the fresco dedicated to theology. **Arguably, this is but one of many compromises made in flattening a universal story of enlightenment into this walk-in Christian mandala.**”

Changes in Version 2013.05.04

Chapter 1, Timeless Reason, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “model” to “multiple-frame model” in the second sentence.

Chapter 3, *Decision Science*, seventh paragraph

Changed “coherent sets” to “multiple-frame models” in the last sentence.

Chapter 4, *Refining Natural Science*, second paragraph

“Refining the process of refining everyday thinking also calls for refining the coherent sets of models that we use to find problems to solve.⁵ We refine these sets by weeding out all models that are not clear, concise, and *beautiful*. We further refine these sets by weeding out models that fail to meet our (evolving) standards for helping us find problems to solve. The rub is that we do not know exactly what it is that we ought to seek.”

was changed to:

“Refining the process of refining everyday thinking also calls for refining the multiple-frame models that we use to find problems to solve.⁵ We refine these multiple-frame models by weeding out all single-frame models that are not clear, concise, and *beautiful*. We further refine these multiple-frame models by weeding out single-frame models that fail to meet our (evolving) standards for helping us find problems to solve. The rub is that we do not know exactly what it is that we ought to seek.”

Chapter 8, *Beautiful Reason*, fifth paragraph

“When we pursue the timeless end of deciding well by pursuing the boundless factors of deciding well, we seek not only to find the best solution to given problems, but also the best problems to solve. Reason concerns not only the models we use to solve given problems, but also the coherent sets of models that we use to find problems to solve. Excellence in finding problems to solve calls for models that are ambiguous with respect to the timeless ends of all boundless factors of deciding well and the means of pursuing these ends. We may call the set of rules that we use to relate beliefs well within these sets of models *the rules of Reason*.”

was changed to:

“When we pursue the timeless end of deciding well by pursuing the boundless factors of deciding well, we seek not only to find the best solution to given problems, but also the best problems to solve. Reason concerns not only the single-frame models we use to solve given problems, but also the multiple-frame models that we use to find problems to solve. Excellence in finding problems to solve calls for (coherent sets of) single-frame models that are ambiguous with respect to the timeless ends of all boundless factors of deciding well and the means of pursuing these ends. We may call the set of rules that we use to relate beliefs well within this approach to deciding well *the rules of Reason*.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, fifth paragraph

Changed “**too passionately held**” to “**fervent**” in the last sentence.

Changes in Version 2013.05.07

Preface, fifth paragraph, first sentence

Added the sentence:

“**Given our imperfect knowledge of how to pursue the timeless end of deciding well, the pursuits of the timeless end of deciding well and the timeless end of believing well, though interwoven, are not one and the same.**”

Chapter 1, *Steps for Building Multiple-Frame Models*, third paragraph

Changed “**problems to solve in deciding well that involve profound changes to**” to “**holes in**” in the first sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, fourth paragraph

“**Because we lack the knowledge of how to pursue these two ends perfectly, it useful for us to think of them as separate pursuits, each subject to its own set of problems.**”

was deleted.

Chapter 3, *Contemplating the Way Forward*, third paragraph

Changed “**approximates**” to “**approximations**” in the fifth sentence.

Chapter 3, *Contemplating the Way Forward*, fourth paragraph

Changed “**approximations**” to “**approximates**” in all (2 occurrences).

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph, footnote

Changed “**short**” to “**other words**” in the second sentence.

Changed “self-referential” to “**(self-referential)**” in the fourth sentence.

Chapter 4, *Academic Fields*, fourth paragraph

Changed “**positive-sum game theory**” to “**natural (invariant) game theory**” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“For more about natural game theory and biological evolution, see the seventh chapter.”

Chapter 6, *Heroic Death*, second paragraph

Changed “the final battle” to “a final battle” in the last sentence.

Appendix C, fifth paragraph, footnote, last sentence

“Given our imperfect knowledge of Wisdom, the pursuits of Wholeness and the Truth, though interwoven, are not one and the same.”

was deleted.

Changes in Version 2013.05.11

The following edits were prompted by comments made by V. Wellman:

Preface, third paragraph

Changed “the temporal and the timeless” to “events and processes” in the second sentence.

Changed “timeless model of deciding well, a model” to “model” in the sixth sentence.

Changed “cycle” to “cycle on any given level of abstraction” in the seventh sentence.

Changed “temporal” to “temporally-bounded” in the eighth sentence.

Preface, fourth paragraph, last two sentences

“These constraints concern all steps in the decision cycle. We overcome these constraints by learning ever more about deciding well.”

were changed to:

“These constraints concern all three steps in this decision cycle: (1) overcoming constraints in finding problems to solve helps us become ever more *effective*; (2) overcoming constraints in solving given problems helps us become ever more *efficient*, and (3) overcoming constraints in learning from experience helps us become ever *wiser* (ever more effective and efficient). This dynamic concept of economics, which we may call *the economics of deciding well*, concerns not only efficiency, but also effectiveness and wisdom.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, third paragraph, end

Added the following paragraphs:

“In taking this boundless approach to deciding well, we use many bounded models of the world to help us evaluate solutions to given problems. In bounding our models of the world, we exclude what happens outside the bounds of our models from our models. In effect, we presume to know more than we can ever possibly know in order to build logically consistent models of the world that help us predict well within given domains.

“In taking this boundless approach, we also use a boundless model of the world to help us find problems to solve. The most basic problem we face is the problem of whether the problem we believe is best is truly best. Dwight Eisenhower provided us with a solution to this problem: “If a problem cannot be solved, enlarge it.” Following this simple advice completely, we end with the problem that contains all other problems in deciding well. Our problem then becomes one of how best to address this universal problem.

“We do not have the knowledge we need to build a logically consistent and complete model of this universal problem. The best we can do is to build a complex model that provides us with a strategy for addressing it. As military strategist John Boyd wrote, such a grand strategy ought to provide us with (1) the ability to peer into and discern the inner nature of things; (2) the internal drive to think and take action without being urged; (3) the power to adjust or change in order to cope with new or unforeseen circumstances; and (4) the power to perceive or create interaction of apparently disconnected events or entities in a connected way.”

Preface, new seventh and eighth paragraphs

“Over time, we collectively learn that the timeless end of believing well (the truth) is one of many universally useful and inexhaustible factors of deciding well that we can never have in excess. Given our imperfect knowledge of how best to pursue the timeless end of deciding well, the pursuits of the timeless end of deciding well and the timeless end of believing well, though interwoven, are not one and the same. We also learn that the endless pursuits of all of these “boundless factors” intertwine to form a single endless pursuit:

For any boundless factor of deciding well (A) and any other boundless factor of deciding well (B), pursuing A well calls for us to decide well, which in turn calls for us to pursue B well. Further, pursuing B well calls for us to decide well, which in turn calls for us to pursue A well. Hence, the pursuit of A and the pursuit of B intertwine to form a **single endless** pursuit in which the better we decide, the more tightly the endless pursuits of these two factors intertwine. Applying this logic to all boundless factors of deciding well, the endless pursuits of all boundless factors of deciding well intertwine to form a **single endless** pursuit in which the better we decide, the more tightly the endless pursuits of these factors intertwine.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We can use this **insight into the nature** of deciding well to build *multiple-frame* models of deciding well. **We can use these models to find problems to solve** that “ring true” with all that we currently know about deciding well. **If a problem rings true, then we have found a “beautiful” problem to solve.** We can then use the models that best help us predict what will happen within the bounds of our chosen problem to help us **solve it.** **Underlying this process of finding and solving problems is a concept of reason that calls for us to define, decompose, and discard our ignorance.”**

were changed to:

“**To address this universal problem well we need to consider the knowledge resources that we need to address it well. We may think of these resources as parts of factors of deciding well that we can never have in excess. We may call these boundless aspects of wisdom *boundless factors of deciding well.* So conceived, the pursuits of these boundless factors form a complex structure:**

For any boundless factor of deciding well (A) and any other boundless factor (B), pursuing A well calls for us to decide well, which in turn calls for us to pursue B well. Further, pursuing B well calls for us to decide well, which in turn calls for us to pursue A well. Hence, the pursuit of A and the pursuit of B intertwine to form a **complex** pursuit in which the better we decide, the more tightly the endless pursuits of these two factors intertwine. Applying this logic to all boundless factors of deciding well, the endless pursuits of all boundless factors of deciding well intertwine to form a **complex** pursuit in which the better we decide, the more tightly the endless pursuits of these boundless factors intertwine.

“We can use this **complex description** of deciding well to build **boundless** models **that help us find “beautiful” problem to solve,** problems that “ring true” with all that we currently know about deciding well. We can then use the bounded models that best help us predict what will happen within the bounds of our chosen problem to help us evaluate alternative solutions.”

Preface, new ninth paragraph, first sentence

“The **extraordinary** claim that we ought to replace **our modern concept of reason as rationality (the reason of geometry, mathematics, and logic)** with a **new** concept calls for extraordinary evidence.”

was changed to:

“**Underlying this approach to deciding well is a concept of reason that is more complete than rationality (the reason of geometry, mathematics, and logic). This more complete concept of reason calls for us to define and discard waste in deciding well.** The claim that we ought to replace rationality with a **more complete** concept of reason **is extraordinary. Such a claim** calls for extraordinary evidence.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, new tenth paragraph

Changed “*(invariant) science*” to “*science*” in the first sentence.

Preface, new eleventh paragraph

Changed “*timeless*” to “*boundless*” and “*marginalist*” to “*modern*” in the first sentence.

Preface, last paragraph

Changed “this approach” to “this *boundless* approach” and “*timeless*” to “*boundless*” in the first sentence.

Chapter 1, entire chapter

Changed “*temporal*” to “*bounded*” in all (23 occurrences).

Changed “*timeless*” to “*boundless*” in all (51 occurrences).

Chapter 1, Choosing Frames Well, first paragraph

Changed “*ambiguity*” to “*waste*” in all (3 occurrences).

Changed “*we currently know how*” to “*it is currently economic for us*” in the first sentence.

Chapter 1, Values, third paragraph

Changed “*bounded process of deciding well*” to “*problem at hand*” in the fourth sentence.

Chapter 1, Steps for Building Multiple-Frame Models, third paragraph

Changed “*tautological* way in which we define Wisdom and deciding well” to “way in which we define Wisdom and deciding well *in terms of each other*” in the first sentence.

Chapter 1, Ever More Complete Multiple-Frame Models, third paragraph, footnote

Changed “*multiple-frame* approach to deciding well” to “*boundless* approach to deciding well *put forth in this work*” in the last sentence.

Chapter 1, Timeless Reason, entire section

“*Timeless Reason*”

From the view of this multiple-frame approach¹⁴ to deciding well, hereafter referred to

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

simply as *the multiple-frame approach*, involves distinguishing between the models we use to help us solve given problems and those we use to help us find problems to solve.

“In using the first type of model, we choose to ignore what we do not know about how what happens outside model domains affect what happens inside them. We can see this most clearly in the *ceteris paribus* assumption in modern economic models. In effect, we presume to know more than we can ever possibly know in order to build logically consistent models that predict well within given domains.

“In using the second type of model, we explicitly include what we do not currently know into our models of the world. We use these models to help us find problems to solve. The most basic of these problems is the problem of whether the problem we believe is best is indeed best. Dwight Eisenhower provided us with a solution to this problem: “If a problem cannot be solved, enlarge it.” Following this simple advice completely, we end with the problem that contains all other problems in deciding well. Our problem then becomes one of how best to address this universal problem.

“We do not have the knowledge we need to build a logically consistent and complete model of this universal problem. The best we can do is to build a multiple-frame model that provides us with a strategy for addressing it. As we shall see, such a grand strategy ought to provide us with the ability to peer into and discern the inner nature of things, the internal drive to think and take action without being urged, the power to adjust or change in order to cope with new or unforeseen circumstances, and the power to perceive or create interaction of apparently disconnected events or entities in a connected way.¹⁵ The strategy for learning put forth in this work provides us with ever more of these provisions.”

¹⁴ We can be more certain about which *approaches* are best than we can about which *methods* are best. We can be more certain of the recursive approach to determining the value of π than we can be certain of the best method of determining the value of π . Similarly, we can be more certain of the multiple-frame approach to deciding well than we can be certain of the best method of deciding well.”

¹⁵ Boyd, J., *Patterns of Conflict*, 2005 Defense in the National Interest revision, slide #144. This slide presentation is available online in the Boyd archive section of Project White Horse, <<http://www.projectwhitehorse.com/boydarchive.htm>> (30 April 2013).”

was reduced to the a sentence at the end of the preceding paragraph:

“We may call this complex approach to deciding well the *boundless approach to deciding well*, or simply the *boundless approach*. We may also call the “view” of this approach *the boundless view of deciding well*, or simply *the boundless view*.”

Chapter 2, entire chapter

Changed “temporal” to “bounded” in all (16 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “timeless” to “boundless” in all (4 occurrences).

Chapter 2, Boundless Tools for Living Well, first paragraph

Changed ““view” of the multiple-frame approach” to “boundless view of deciding well” in the third sentence.

Chapter 2, Boundless Tools for Living Well, second paragraph, footnote

² **Marginalist economics** is a collection of tools for describing the world as it currently is. **The** Chicago school distinguishes itself from other **marginalist** schools by distinguishing between tools for describing the world as it currently is (“positive economics”) and prescribing the world as it ought to be (“normative economics”). The “recursionist” approach to economics put forth in this work competes against **Austrian and Marxist** schools in describing the world as it is in the process of becoming. Given that we ought to live well, it also competes against these **two** schools in prescribing the world as it ought to be.”

was changed to:

² **Modern economics more accurately refers to mainstream modern economics, the economics that emerged from the marginalist revolution of the 1870s. In the tradition of Alfred Marshall, we may think of mainstream economics as** a collection of tools for describing the world as it currently is. **In the tradition of Milton Friedman, the modern** Chicago school distinguishes itself from other **mainstream** schools by distinguishing between tools for describing the world as it currently is (“positive economics”) and prescribing the world as it ought to be (“normative economics”). In contrast, the “recursionist” approach to economics put forth in this work competes against **various evolutionary** schools in describing the world as it is in the process of becoming. Given that we ought to live well, it also competes against these schools in prescribing the world as it ought to be.”

Chapter 2, Boundless Tools for Living Well, last paragraph

“**In the rest of this chapter, the bounded view means the bounded view of modern economics. In the rest of this book, the multiple-frame view means the “view” of the multiple-frame approach.**³”

³ **Earlier versions of this work used the term ‘multiplex view,’ which came from biologist Jack Cohen and mathematician Ian Stewart’s book about the co-evolution of minds and environments, *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997). Regrettably, the authors overlooked the unity of virtue.”**

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 2, entire chapter

Changed “the bounded view” to “the bounded view of modern economics” in all (7 occurrences).

Changed “the multiple-frame view” to “the boundless view” in all (7 occurrences).

Chapter 2, *Chicago Screwdrivers*, entire subsection

Deleted the second sentence in the first (and only) paragraph:

“Just as we ought never to use hammers to drive in screws, we ought never to use bounded tools to find problems to solve.”

Deleted the title, which effectively merged this subsection into the preceding subsection.

Chapter 3, entire chapter

Changed “temporal” to “bounded” in all (3 occurrences).

Changed “timeless” to “boundless” in all (7 occurrences).

Changed “the multiple-frame view” to “the boundless view” in all (6 occurrences).

Changed “the multiple-frame approach” to “the boundless approach” in all (6 occurrences).

Chapter 3, *Overcoming Constraints in Deciding Well*, third paragraph

Changed “pursuing the boundless end of living well” to “living well” in the last sentence.

Chapter 3, *Public Order*, last paragraph

Changed “boundless public order” to “boundless (timeless) public order” in the third sentence.

Changed “bounded public order” to “bounded (temporal) public order” in the fourth sentence.

Chapter 3, *Public Entropy*, last paragraph

“We can use the concept of public entropy to help us link partial descriptions of the world into an ever more coherent whole that we can use to find ever better problems to solve.⁹ We can begin by using it to relate quantum mechanics to deciding well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Removing ambiguity from ambiguous links between beliefs in belief systems is like removing work-in-process inventory from elastic links between production processes in the Toyota production system. At the limit of the former, ambiguous links become logical. At the limit of the latter, elastic links become rigid. In both cases, we remove waste from the process of deciding well.”

was changed to:

“We can use the concept of public entropy to help us know how best to remove waste from our belief systems. Removing waste from our belief systems is like removing work-in-process inventory from the Toyota production system. At the limit of the former, relations become logical. At the limit of the latter, links become rigid. In both cases, we remove waste from the process of deciding well. We can begin by relating quantum mechanics to deciding well.”

Chapter 3, *Decision Science*, title

Changed title to “*A Boundlessly Pragmatic Interpretation of Quantum Mechanics.*”

Chapter 3, *The Elephant in the Room*, first paragraph

Changed “in the realm that mathematicians consider to be practically infinite” to “practically infinite” in the last sentence.

Changed “Oxford University's” to “the Isaac” in the first sentence of the footnote.

Chapter 3, *The Elephant in the Room*, last paragraph, first two sentences

“From a theistic view, we were lucky to have been born into a world created to be conducive to life. From an atheistic view, we were extremely lucky to have been born into a world conducive to life.”

were deleted.

Chapter 4, entire chapter

Changed “temporal” to “bounded” in all (4 occurrences).

Changed “timeless” to “boundless” in all (1 occurrence).

Changed “the multiple-frame view” to “the boundless view” in all (6 occurrences).

Changed “the multiple-frame approach” to “the boundless approach” in all (1 occurrence).

Chapter 4, *Refining Natural Science*, second paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“For mathematics to be a basis of a self-referential process of refining everyday thinking, mathematics must be a part of this process. From the multiple-frame view, the true sciences would include mathematics as the science of patterns. For more about this, see Appendix A.”

was deleted.

Chapter 5, entire chapter

Changed “temporal” to “bounded” in all (3 occurrences).

Changed “timeless” to “boundless” in all (7 occurrences).

Changed “the multiple-frame view” to “the boundless view” in all (4 occurrences).

Changed “the multiple-frame approach” to “the boundless approach” in all (3 occurrences).

Chapter 6, entire chapter

Changed “timeless” to “boundless” in all (8 occurrences).

Changed “the multiple-frame view” to “the boundless view” in all (4 occurrences).

Chapter 6, OODA Loop Analysis, second paragraph

Changed “temporal” to “temporally-bounded” in the first sentence.

Chapter 7, entire chapter

Changed “temporal” to “bounded” in all (2 occurrences).

Changed “timeless” to “boundless” in all (5 occurrences).

Changed “the multiple-frame view” to “the boundless view” in all (3 occurrences).

Changed “the multiple-frame approach” to “the boundless approach” in all (1 occurrence).

Chapter 8, entire chapter

Changed “temporal” to “bounded” in all (4 occurrences).

Changed “timeless” to “boundless” in all (9 occurrences).

Changed “the multiple-frame view” to “the boundless view” in all (1 occurrence).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “the **multiple-frame** approach” to “the **boundless** approach” in all (3 occurrences).

Chapter 8, Beautiful Reason, third paragraph

Changed “**unambiguous**” to “**logically consistent**” in all (4 occurrences).

Appendix A, entire appendix

Changed “**temporal**” to “**bounded**” in all (1 occurrences).

Changed “**timeless**” to “**boundless**” in all (4 occurrences).

Appendix A, title

Changed title from “**The Science of Patterns**” to “**The Study of Patterns.**”

Appendix A, The Basis of Mathematics, title

Changed title to “**The Science of Patterns.**”

Appendix A, The Science of Patterns, first paragraph

Changed “can” to “can **never**” in the third sentence.

Changed “tool **in question**” to “tool” in the last sentence.

Appendix A, The Science of Patterns, second paragraph

Changed “**mathematics as a whole**” to “**the science of patterns**” in the first sentence.

Changed “**mathematics**” to “**the science of patterns**” in the first sentence.

Appendix A, The Science of Patterns, last paragraph

Changed “**mathematics**” to “**the science of patterns**” in the first sentence.

Changed “**mathematical**” to “**pattern**” in the second sentence.

Appendix B, entire appendix

Changed “**timeless**” to “**boundless**” in all (2 occurrences).

Appendix B, *Machine Tools*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “a temporal view of producing well common in the West” to “the view of modern economics and management science” in the first sentence.

Changed “a boundless view of producing well” to “the boundless view” in the second sentence.

Changed “efficient” to “ever more efficient” in the fourth sentence.

Appendix B, Less is More, first paragraph

Changed “always exceed” to “exceed” in the last sentence.

Appendix C, entire appendix

Changed “timeless” to “boundless” in all (6 occurrences).

Changes in Version 2013.05.14

Chapter 1, Values, fourth paragraph

Changed “*induce*” to “*create*” in the second sentence.

Chapter 1, Values, sixth paragraph

Changed “*inducing*” to “*creating*” in the first sentence.

Chapter 1, Values, last paragraph, last sentence

“We can use this insight as the basis for building multiple-frame models of deciding well for helping us find problems to solve.”

was changed to:

“The process of deciding well calls for refining the process of deciding well. To refine this process well, we need a means of breaking it down into wieldier problems. One way involves breaking down Wisdom into universally useful resources for deciding well that we can never have in excess. We may call these aspects of Wisdom *boundless factors of deciding well*. Taken together, the pursuits of these boundless factors form a complex model of deciding well. We can use this model to judge whether the problems we find “ring true” with all that we currently know about deciding well. If they do, we have found a “beautiful” problem to solve.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2013.05.15

Preface, fifth paragraph

Changed “**many** bounded” to “bounded” in the first sentence.

Preface, eighth paragraph

Changed “**boundless** aspects” to “aspects” in the third sentence.

Changed “**boundless** factors” to “knowledge resources” in the fourth sentence.

Preface, tenth paragraph

“We can use this **complex description** of deciding well to build **boundless** models that help us find “beautiful” problem to solve, problems that “ring true” with all that we currently know about deciding well. **We can then use the bounded models that best help us predict what will happen within the bounds of our chosen problem to help us evaluate alternative solutions.**”

was appended to the preceding paragraph and changed to:

“We can use this **model of the structure** of deciding well to build **complex** models of deciding well that help us find “beautiful” problem to solve, problems that “ring true” with all that we currently know about deciding well.”

Preface, new tenth paragraph, first three sentences

“Underlying this approach to deciding well is a concept of reason **that is more complete than rationality (the reason of geometry, mathematics, and logic)**. **This more complete concept of reason calls for us to define and discard waste in deciding well.** The claim that we ought to replace **rationality with a more complete** concept of reason is **extraordinary**. **Such a claim** calls for extraordinary evidence.”

was changed to:

“Underlying this approach to deciding well is a concept of reason **based on beauty as well as logic**. The claim that we ought to replace **our current** concept of reason calls for extraordinary evidence.”

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph, last two sentences

“We may call this complex approach to deciding well *the boundless approach to deciding well*, or simply *the boundless approach*. We may also call the “view” of this approach *the boundless view of deciding well*, or simply *the boundless view*.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“We can then use bounded models that predict well within the domain of this problem to help us judge courses of action.

“We may call this complex approach to deciding well *the boundless approach to deciding well*, or simply *the boundless approach*. We may also call the “view” of this approach *the boundless view of deciding well*, or simply *the boundless view*.”

Chapter 2, Boundless Tools for Living Well, last paragraph, footnote, second and third sentences

“In the tradition of Alfred Marshall, we may think of mainstream modern economics as a collection of tools for describing the world as it currently is. In the tradition of Milton Friedman, the modern Chicago school distinguishes itself from other mainstream schools by distinguishing between tools for describing the world as it currently is (“positive economics”) and prescribing the world as it ought to be (“normative economics”).”

were changed to:

“This approach to economics describes the world as it currently is.”

Chapter 3, Public Order, last paragraph

Changed “*boundless (timeless)*” back to “*boundless*” in the third sentence.

Changed “*temporal*” to “*current*” in the fourth sentence.

Chapter 3, Public Entropy, last paragraph

Changed “*relating*” to “*more tightly linking*” in the last sentence.

Chapter 7, An Extraordinary Anomaly, last paragraph

“Deciding well calls for all of us to judge actions by how well they ring true with all that we currently know about pursuing the boundless end of deciding well and to judge people by the content of their character as revealed by their actions.”

was changed to:

“In playing the boundless game of deciding well, we judge actions by how well they ring true with all that we currently know about deciding well and people by the content of their character as revealed by their actions.”

Chapter 7, The Scope of Biological Evolution, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “Our” to “We recognize that our” in the last sentence.

Chapter 8, Beautiful Reason, second paragraph

Changed “Our” to “We recognize that our” in the last sentence.

Chapter 8, Eudaemonia, last paragraph, first footnote

Moved the first (Appendix C reference) sentence to the end of the footnote.

Changed “Regrettably, in” to “In” in the new first sentence.

Appendix A, The Science of Patterns, title

Changed title to “Indispensable Patterns.”

Appendix A, Indispensable, first paragraph

Changed “independent” to “truly independent” in the second sentence.

Changed “boundless end” to “end” in the third sentence.

Deleted the last sentence: “We do so by acting as if the tool is indispensable.”

Appendix A, Indispensable Patterns, second paragraph

“We can apply this reasoning to the science of patterns. To prove that the science of patterns is indispensable in deciding well, we seek to disprove the proposition that there exist some patterns that are indispensable in deciding well. We do so by acting as if some patterns are indispensable in deciding well.”

was deleted.

Appendix A, Indispensable Patterns, last paragraph, first sentence

“We base the science of patterns on the reason of deciding well.”

were changed to:

“We may call the pursuit of knowledge of patterns that are indispensable in deciding well *the science of patterns*.”

Appendix C, fourth paragraph

Changed “myth” to “mythology” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, seventh paragraph, last two sentences

“Ironically, a visual means of expressing this self-similarity lies beneath our feet as we look up at the oculus. We find this means in a crude version of a self-similar tile pattern known to Roman artisans since the late eleventh century:”

were changed to:

“A visual means of expressing this self-similarity lies beneath our feet in a crude version of a self-similar tile pattern known to Roman artisans since the late eleventh century:”

Appendix C, last paragraph

Changed “perspective with a two-point perspective” to “perspective” in the third sentence.

Changed “juxtaposition” to “clash of perspectives” and “higher dimensional” to “higher-dimensional” in the fourth sentence.

Changes in Version 2013.05.20

Chapter 1, Useful Frames, section

Demoted section to subsection.

Chapter 4, *Academic Fields*, fourth paragraph

Moved footnote to the end of the last sentence.

Changed “*natural (invariant) game theory*” to “*game theory*” in the last sentence.

Changed “*natural (invariant) game theory*” to “*game theory*” in the first sentence of the footnote.

Chapter 6, A Common Boundless End, first and last paragraphs

“Defining the process of living well and the boundless end of living well in terms of one another creates ambiguity in the frame for living well. We may refine our beliefs about living well by creating a frame for satisfying our need for mystical oneness. We do this by defining the process of satisfying our need for mystical oneness and the boundless end of this process in terms of one another. We may call the boundless end of satisfying our need for mystical oneness *Wholeness*.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“However useful creating a frame for linking well may be in helping us better understand living well, it does not tell us whether we ought to link well in order to live well or to live well in order to link well. From a logical view, the belief that we ought to link well in order to live well conflicts with the belief that we ought to live well in order to link well. From the boundless view, we best settle this conflict by having these beliefs compete in the marketplace of ideas for helping us decide well.”

were changed to:

“The possibility that some part of us survives the death of our bodies casts doubt on the belief that we link well in order to live well, as opposed to living well in order to link well. We may address this problem by creating a frame for satisfying our need for linking well. We do so by defining the process of linking well and the boundless end of this process in terms of one another. We may call the boundless end of linking well *Wholeness*.

“Given our ignorance of Wisdom, the pursuits of Happiness and Wholeness are not one in the same. From a logical view, the belief that we ought to pursue Happiness conflicts with the belief that we ought to pursue Wholeness. From the boundless view, we ought to pursue Wisdom, which calls for us to resolve such conflicts in the marketplace of ideas for helping us decide well.”

Chapter 8, Eudaemonia, last paragraph, last sentence

“Including Eudaemonia in our set of boundless factors of deciding well provides us with a means of thinking about how best to govern the parts of our minds that process information unconsciously.”

was changed to:

“Pursuing this boundless end helps us use the normally unconscious parts of our minds ever more wisely.”

Appendix C, title quotes

Added reference to the Protagoras quote.

Removed braces from the last quote.

Changed “*Plato's Socrates*” back to “*Socrates*” in the last quote.

Appendix C, first paragraph, third sentence

“In the movie based on astronomer Carl Sagan’s book, *Contact*, billionaire industrialist S. R. Hadden said that the key to translating the alien message was realizing that our modern way of reasoning is not the best: “An alien intelligence is going to be more

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

advanced and that means efficiency functioning on multiple levels and in multiple dimensions.”

was changed to:

“In the movie based on Carl Sagan’s book *Contact*, the key to translating the aliens’ message was recognizing that they pursued Beauty: “An alien intelligence is going to be more advanced and that means efficiency functioning on multiple levels and in multiple dimensions.””

Appendix C, second paragraph

Changed “boundless” back to “timeless” in the last sentence.

Changes in Version 2013.05.22

Preface, first paragraph

Changed “questioned relentlessly” to “challenged” in the fourth sentence.

Preface, third to last paragraph

Changed “science” to “true science” in the last sentence.

Preface, second to last paragraph

Changed “grand strategy for competing in time” to “grand strategy” in the fourth sentence.

Chapter 8, Eudaemonia, last paragraph, first footnote

Changed “In” to “Note that in” and “in Book II of *The Republic*,” to “,” in the first sentence.

Moved the sentence referring to Appendix C back to the beginning of the footnote.

Chapter 8, Eudaemonia, last paragraph, last footnote

Changed “end” to “ends” in the last sentence.

Appendix C, third paragraph

Changed “octagons, which represent learning ever more about Wisdom and the world” to “octagons” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, fourth paragraph

“The most important octagon is the faux oculus at the center of the ceiling, which is the result of combining two Platonic themes, the unity of virtue (*Protagoras*) and the four elements (*Timaeus*):

[Photograph of the central ceiling]

“The four circles containing women represent poetry, philosophy, jurisprudence, and theology. The four hourglass composites of scenes from Greek mythology and Roman history represent earth, water, air and fire. Together with the central oculus, these four composites form a Greek cross. The center of this cross represents both *Hagia Sophia* (Holy Wisdom) and *aether* (the mysterious fifth element). Above this oculus, four putti push up and another four putti pull down a circle that contains a symbol of the papacy.”³

was changed to:

“The most important octagon is the faux oculus at the center of the ceiling, which is also the highest point in the room. Surrounding this oculus are four hourglass composites of scenes from Greek mythology and Roman history. Also surrounding it are four circles containing female figures that introduce the subjects of the four walls. These subjects are poetry (left), philosophy (bottom), justice (right), and theology (top):³

[Photograph of the ceiling]

“From the boundless view, the octagon is the result of combining two Platonic themes, the four elements (*Timaeus*) and the unity of virtue (*Protagoras*). We see the four elements in the hourglass composites. Together with the central oculus, these four composites form a Greek cross that aligns with the corners of the room. We see the unity of virtue in the pursuits of the boundless ends of poetry (Beauty), philosophy (the Truth), justice (Justice), and theology (Wholeness). Taken together with the oculus, the pursuits of these four aspects of Wisdom form a second cross that aligns with the walls of the room. The center of these two crosses represents both the mysterious fifth element (*aether*) and Wisdom (*Hagia Sophia*).”

Appendix C, fifth paragraph, first three sentences

“From the boundless view of this work, this Tantalean image represents learning ever more about both Wisdom and the world. The four aspects of virtue represent the pursuits of the boundless ends of contemplating well (Beauty), believing well (the Truth), governing ourselves well (Justice), and linking well with something infinitely greater than ourselves (Wholeness). The four putti pushing up the papal symbol stand at the center of the edges of the octagon nearest to these boundless factors of deciding well.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Above the oculus, four putti push up and another four pull down a circle that contains a symbol of the papacy:

[Photograph of the oculus]

From the boundless view, this Tantalean image represents learning ever more about both the world **and the means of learning ever more about the world (Wisdom)**. The four putti pushing up the papal symbol stand at the center of the edges of the octagon nearest to the four circles that represent the boundless **ends of poetry, philosophy, justice, and theology.**”

Changes in Version 2013.05.25

Chapter 1, Ever More Complete Multiple-Frame Models, last paragraph

Changed ““view”” to “**multiple-frame** “view”” in the last sentence.

Chapter 4, Modern Policy Mistakes, second paragraph

Changed “**makes people**” to “**gives people the energy, clarity, and wholeness to**” in the first sentence.

Changed “**product**” to “**pill to the market**” in the second sentence.

Appendix C, fourth paragraph

“The most important octagon is the faux oculus at the center of the ceiling, which is also the highest point in the room. Surrounding this oculus are four hourglass composites of scenes from Greek mythology and Roman history. Also surrounding it are four circles containing female figures that introduce the subjects of the four walls. These subjects are poetry (left), philosophy (bottom), **justice** (right), and theology (top):³

[Photograph of the ceiling]

“From the boundless view, the octagon is the result of combining two Platonic themes, the four elements (*Timaeus*) and the unity of virtue (*Protagoras*). **We see the four elements in the hourglass composites.** Together with the central oculus, these four composites form a Greek cross that aligns with the corners of the room. We see the unity of virtue in the pursuits of the boundless ends of poetry (Beauty), philosophy (the Truth), **justice** (Justice), and theology (Wholeness). Taken together with the oculus, the pursuits of these four aspects of Wisdom form a second cross that aligns with the walls of the room. The center of these two crosses represents both the mysterious fifth element (*aether*) and Wisdom (*Hagia Sophia*).”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“The most important octagon is the faux oculus at the center of the ceiling, which is also the highest point in the room. Surrounding this oculus are four hourglass composites of scenes from Greek mythology and Roman history, which represent fire (left top), earth (right top), water (right bottom), and air (left bottom). Also surrounding it are four circles containing female figures that introduce the subjects of the four walls. These subjects are poetry (left), philosophy (bottom), jurisprudence (right), and theology (top):

[Photograph of the ceiling]

“From the boundless view, the octagon is the result of combining two Platonic themes, the four elements (*Timaeus*) and the unity of virtue (*Protagoras*). Together with the central oculus, these four composites form a Greek cross that aligns with the corners of the room. We see the unity of virtue in the pursuits of the boundless ends of poetry (Beauty), philosophy (the Truth), jurisprudence (Justice), and theology (Wholeness). Taken together with the oculus, the pursuits of these four aspects of Wisdom form a second cross that aligns with the walls of the room. The center of these two crosses represents both the mysterious fifth element and Wisdom.”

Changes in Version 2013.05.28

Appendix C, fourth and fifth paragraphs

“The most important octagon is the faux oculus at the center of the ceiling, which is also the highest point in the room. Surrounding this oculus are four hourglass composites of scenes from Greek mythology and Roman history, which represent fire (left top), earth (right top), water (right bottom), and air (left bottom). Also surrounding it are four circles containing female figures that introduce the subjects of the four walls. These subjects are poetry (left), philosophy (bottom), jurisprudence (right), and theology (top):³

[Photograph of the ceiling]

“From the boundless view, the octagon is the result of combining two Platonic themes, the four elements (*Timaeus*) and the unity of virtue (*Protagoras*). Together with the central oculus, these four composites form a Greek cross that aligns with the corners of the room. We see the unity of virtue in the pursuits of the boundless ends of poetry (Beauty), philosophy (the Truth), jurisprudence (Justice), and theology (Wholeness). Taken together with the oculus, the pursuits of these four aspects of Wisdom form a second cross that aligns with the walls of the room. The center of these two crosses represents both the mysterious fifth element (*aether*) and Wisdom (*Hagia Sophia* and/or *Logos*).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Above the oculus, four putti push up and another four pull down a circle that contains a symbol of the papacy:

[Photograph of the oculus]

“From the boundless view, this Tantalean image represents learning ever more about both the world and the means of learning ever more about the world (Wisdom). The four putti pushing up the papal symbol stand at the center of the edges of the octagon nearest to the four circles that represent the boundless ends of poetry, philosophy, justice, and theology. Three of the four putti pulling down this symbol stand at the center of the edges nearest to earth, water, and air. The putto that ought to stand at the center of the edge nearest to fire, halfway between poetry and theology, instead sits on the corner of fire and theology with his rope clearly in the domain of theology. This greater tension in theology symbolizes the conflict between fervent beliefs about the pursuit of Wholeness and the true pursuit of Wholeness.⁴”

were changed to:

“The most important octagon is the faux oculus at the center of the ceiling, which is also the highest point in the room. Surrounding this oculus are four hourglass composites of scenes from Greek mythology and Roman history, which represent fire (left top), earth (right top), water (right bottom), and air (left bottom). Also surrounding it are four circles containing female figures that introduce the subjects of the four walls. These subjects are poetry (left), philosophy (bottom), jurisprudence (right), and theology (top):³

[Photograph of the ceiling]

“From the boundless view, the octagon is the result of combining two Platonic themes, the four elements (*Timaeus*) and the unity of virtue (*Protagoras*). Together with the central oculus, the four **hourglass** composites form a Greek cross that aligns with the corners of the room. **The center of this cross represents the mysterious fifth element. Together with the oculus, the four circles form a cross that aligns with the walls of the room. The center of this cross represents Wisdom, which is** the unity of the boundless ends of poetry (Beauty), philosophy (the Truth), jurisprudence (Justice), and theology (Wholeness).

“**Reinforcing the relation between the fifth element and Wisdom is the scene in the rectangle in the lower left of the ceiling, which connects the circles representing the boundless ends of poetry (Beauty) and philosophy (the Truth):**

[Photograph of Urania]

“**This scene depicts a female representation of Wisdom (*Urania*, the Greek muse of astronomy) moving the mysterious element that keeps the heavens in motion (*aether*).**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Also reinforcing this relation are the Greek and Roman crosses formed by rays emanating from the encircled dove on the wall fresco dedicated to the boundless end of theology (Wholeness):

[Photograph of Holy Ghost]

“The dove represents the Holy Ghost, the mysterious divine element within ourselves. Pursuing the truth about this element calls for us to pursue the boundless end of deciding well (Wisdom), which in turn calls for us to pursue the truth about this element.”

Appendix C, last paragraph, last sentence

“Which is the better tool for helping us live well?”

was promoted to a paragraph and changed to:

“We can find a variation of the square-within-an-octagon-within-a-square theme of this boundless symbol of renaissance on the wall dedicated to the boundless end of jurisprudence (Justice). On the left, the chair of Emperor Justinian, an author of Roman law, sits directly on a square tile floor. On the right, the chair of Pope Gregory IX, an author of ecclesiastical law, sits on a square platform, which sits on an octagonal platform, which sits on a square tile floor:

[Photographs of seated figures on jurisprudence wall.]

“Finally, we can find a musical version of this renaissance theme in the fresco dedicated to the boundless end of poetry (Beauty). In the visual center of this fresco, Apollo gazes toward heaven as he plays music on his nine-string “lyre.” He appears to play diatonic (eight-note, repeating-octave scale) melodies using the seven fingerboard strings and a two-note drone using the two strings above the fingerboard. Arguably, this two-note drone represents the two-part reason of Plato and Aristotle that underlies the boundless approach to deciding well:

[Photograph of Apollo playing lyre on poetry wall]

“From these various depictions of the reason of Plato and Aristotle, we may reasonably conclude that the decoration of this room portrays a multiple-frame strategy for pursuing Wisdom (*Hagia Sophia/Logos*). We may also speculate that this multiple-frame strategy is self-referential. If it is, we ought to judge the stories that we use to pursue Wisdom by how well they help us pursue Wisdom. We ought to judge them by their fruits.”

Changes in Version 2013.06.01

Chapter 1, Steps for Building Multiple-Frame Models, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Added the following footnote to the first sentence:

¹³ Earlier versions of this work used the term ‘multiplex,’ which came from biologist Jack Cohen and mathematician Ian Stewart’s book about the co-evolution of minds and environments, *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997). Regrettably, the authors overlooked the unity of virtue.”

Appendix C, fifth paragraph

Changed “*aether*” to “*celestial aether*” in the last sentence.

Appendix C, seventh paragraph, end

Added the sentence:

“Reinforcing this tension are the black clouds underlying the encircled female figure representing theology at the top of the ceiling, as opposed to the white clouds underlying justice, the mauve clouds underlying philosophy, and the pink clouds underlying poetry.”

Appendix C, eleventh paragraph

Changed “endless rationality” to “reason as rationality” in the first sentence.

Appendix C, last paragraph

Changed “portray” to “as a whole depicts” in the first sentence.

Changes in Version 2013.06.07

Acknowledgments, last paragraph

Changed “numbers, especially for those he worked with in the” to “numbers without considering the usefulness of these numbers, a habit he acquired while rising through the ranks of” in the fourth sentence.

Chapter 3, *Public Entropy*, last paragraph, last sentence

“We can begin by more tightly linking quantum mechanics to deciding well.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We can begin **using this concept of public entropy to remove waste from our belief systems** by more tightly linking quantum mechanics to deciding well.”

Chapter 6, The Elephant in the Room, last paragraph, second sentence

“From a logical view, the belief that we ought to **pursue Happiness** conflicts with the belief that we ought to **pursue Wholeness**.”

was changed to:

“From a logical view, the belief that we ought to **link well in order to live well** conflicts with the belief that we ought to **live well in order to link well**.”

Appendix C, third paragraph

Inserted the section title “**The Forgotten Role of Octagons**.”

Appendix C, The Forgotten Role of Octagons, ninth paragraph, footnote, last two sentences

“For example, replacing the papal symbol and putti above the oculus in the ceiling would have harmed the relation between the ceiling and the fresco **dedicated to theology**. **Arguably, this is but one of many compromises made in flattening a universal story of enlightenment into this walk-in Christian mandala**.”

were changed to:

“For example, replacing the papal symbol and putti above the oculus in the ceiling would have harmed the relation between the ceiling and the **poetry, theology, and jurisprudence** frescoes.”

Appendix C, The Forgotten Role of Octagons, tenth paragraph

Changed “square **platform, which sits** on **an** octagonal platform” to “square-on-octagon” in the last sentence.

Appendix C, The Forgotten Role of Octagons, end

Added the following:

“**[The published work will contain two more sections.]**”

Changes in Version 2013.06.08

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, The Forgotten Role of Octagons, last paragraph, last three sentences

“We may also speculate that this multiple-frame strategy is self-referential. If it is, we ought to judge the stories that we use to pursue Wisdom by how well they help us pursue Wisdom. We ought to judge them by their fruits in pursuing the truth about Wisdom.”

were deleted.

Changes in Version 2013.06.10

Edits that resulted from Sally Osborn's review of May 22 version.

Entire document

Changed “indispensable **in**” to “indispensable **to**” in all (4 occurrences).

Preface, first paragraph

Changed “trained-economist” to “trained economist” in the first sentence.

Changed “school to” to “school **in order** to” in the third sentence.

Preface, third paragraph

Changed “temporally bounded” to “temporally-bounded” in the first sentence of the block quote.

Preface, sixth paragraph

Changed “problem” to “problem.” in the first sentence.

Preface, seventh paragraph

Changed “**need**” to “**require**” in the first sentence.

Changed “problem” to “problems” in the last sentence.

Chapter 1, Values, third paragraph, footnote

Changed “third-person” to “third person” and “first-person” to “first person” in the third sentence.

Chapter 1, Ever More Complete Multiple-Frame Models, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “debts **that** we” to “debts we” in the third sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, second and third paragraphs

Removed all italics from the last sentences.

Chapter 3, *A Boundlessly-Pragmatic Interpretation of Quantum Mechanics*, seventh paragraph

Changed “**with** not only” to “not only **with**” in the second sentence.

Chapter 3, *A Boundlessly-Pragmatic Interpretation of Quantum Mechanics*, eighth paragraph, first footnote

Changed “poorly-trained” to “poorly trained” in the third sentence.

Changed “highly-trained” to “highly trained” in the fourth sentence.

Chapter 4, *Refining Natural Science*, first paragraph

Changed “refining models” to “refining **the** models” in the second sentence.

Chapter 4, *Refining Finding Problems to Solve*, second paragraph

Changed “way **that**” to “way **in which**” in the first sentence.

Chapter 4, *Refining Finding Problems to Solve*, third paragraph

Changed “way **that**” to “way **in which**” in the first sentence.

Chapter 4, *Refining Finding Problems to Solve*, fourth paragraph

Changed “way” to “way **in which**” in the first sentence.

Chapter 5, *The Explicit Experiment*, first paragraph, second footnote

Changed “it.” to “it” in the last sentence.

Chapter 5, *A Sovereign Story for Deciding Well*, last paragraph, second footnote

Abbreviated the names of states (2 occurrences).

Chapter 5, *The Explicit Experiment*, first paragraph, second footnote

Changed “it.” to “it” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, *Lower Barriers to Trade*, first paragraph, footnote

Changed “high technology” to “high-technology” in the last sentence.

Chapter 6, *A Hole in Pursuing Happiness*, first paragraph

Changed “**the** Beauty” to “Beauty” in the third sentence.

Chapter 6, *Mystical Oneness*, last paragraph

Changed “**M**edieval” to “**m**edieval” in the last sentence.

Chapter 6, *A Common Boundless End*, last paragraph

Changed “one **in**” to “one **and**” in the first sentence.

Chapter 7, *E–M Theory*, first paragraph

Changed “widely-used” to “widely used” in the fourth sentence.

Chapter 7, *OODA Loop Analysis*, second paragraph

Changed “temporally-bounded” to “temporally bounded” in the first sentence.

Chapter 7, *OODA Loop Analysis*, last paragraph

Changed “the dissonance experienced by the subjects of Bruner and Postman’s experiment **in Saddam Hussein**” to “**in Saddam Hussein** the dissonance experienced by the subjects of Bruner and Postman’s experiment ” in the third sentence.

Chapter 7, *Boyd's Grand Strategy*, last paragraph

Changed “imaginations” to “imagination” in the last sentence.

Chapter 8, *Beautiful Reason*, sixth paragraph

Changed “know it” to “know **that** it” in the last sentence.

Chapter 8, *Beautiful Reason*, sixth paragraph, first footnote

Changed “**O**ver” to “**o**ver” and “Melon” to “Mellon” in the first sentence.

Chapter 8, *Complete Reason*, first paragraph, first footnote

Changed “prove the set” to “prove **that** the set” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Eudaemonia, first paragraph

Changed “by adding what we currently believe we know about pursuing the boundless factors of deciding well **to them**” to “**to them** by adding what we currently believe we know about pursuing the boundless factors of deciding well” in the third sentence.

Appendix A, A Modern Intelligence Test, sixth paragraph

Changed “way **that**” to “way **in which**” in the second sentence.

Appendix A, A Modern Intelligence Test, ninth paragraph

Changed “way **that**” to “way **in which**” in the second sentence.

Appendix A, A Modern Intelligence Test, tenth paragraph

Changed “explain top-row” to “explain **the** top-row” in the fifth sentence.

Appendix A, The Big Picture, second paragraph

Changed “complete **of** an answer” to “complete an answer” in the fifth sentence.

Appendix A, The Big Picture, third paragraph

Changed “symbols we plan” to “symbols **that** we plan” in the second sentence.

Appendix A, Indispensable Patterns, first paragraph

Changed “know we” to “know **that** we” in the third sentence.

Appendix A, Indispensable Patterns, last paragraph

Changed “disprove it” to “disprove **that** it” in the third sentence.

Appendix B, Folding in Production Processes, second paragraph

Changed “the operation **is**” to “**is** the operation” in the last sentence.

Appendix B, Temporal Details, first paragraph, footnote

Changed “**The** Cambridge Corporation” to “**t**he Cambridge Corporation” in the first sentence.

Changed “**The** Cambridge Corporation” to “Cambridge Corporation” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix B, Less is More, title

Capitalized “**I**s.”

Appendix C, second paragraph

Removed italics.

Appendix C, The Forgotten Role of Octagons, second paragraph

Changed order of adjectives in parentheses.

Changed “high resolution” to “high-resolution” in the first sentence of the footnote.

Appendix C, The Forgotten Role of Octagons, fifth paragraph

Changed “theology with his rope” to “theology, with his rope” in the last sentence.

Appendix C, The Forgotten Role of Octagons, seventh paragraph, footnote

Changed “122” to “22” in the first sentence.

Appendix C, The Forgotten Role of Octagons, eleventh paragraph

Removed italics from “**Vitruvian Man**” in the third to last sentence.

Appendix C, The Forgotten Role of Octagons, twelfth paragraph

Changed “square tile” to “square-tiled” in the all (2 occurrences).

Changes in Version 2013.06.12

Appendix C, The Forgotten Role of Octagons, first paragraph

Changed “this room” to “the Stanza della Segnatura” in the first sentence.

Appendix C, The Forgotten Role of Octagons, third paragraph, first sentence:

“Reinforcing the relation between the fifth element and Wisdom is the scene in the **rectangle in the lower left of the ceiling, which** connects the circles representing the boundless ends of poetry (Beauty) and philosophy (the Truth):”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Reinforcing the relation between the fifth element and Wisdom is the scene in the **imperfect square that** connects the circles representing the boundless ends of poetry (Beauty) and philosophy (the Truth):”

Appendix C, The Forgotten Role of Octagons, fourth paragraph, last sentence

“Pursuing the truth about this element calls for us to pursue the boundless end of deciding well (**Wisdom**), which in turn calls for us to pursue the truth about this element..”

was changed to:

“Pursuing the truth about this element calls for us to pursue the boundless end of deciding well, which in turn calls for us to pursue the truth about this **mysterious element. In Roman Catholicism, the boundless end of deciding well is Holy Wisdom (Hagia Sophia/Logos).**”

Appendix C, The Forgotten Role of Octagons, second to last paragraph, end

Added the following:

“**Justinian addresses problems that concern everyday living and Gregory IX address problems that concern living wisely. In the corner scene above and to the left of Justinian, Solomon must choose the true mother of a child that two women claim. In the corner scene above and to the right of Gregory IX, Adam and Eve must choose whether to learn to live wisely:**

[Photographs of Solomon and Eden corner scenes]”

Appendix C, The Forgotten Role of Octagons, last paragraph, last sentence

“From these various depictions of **the reason of Plato and Aristotle**, we may reasonably conclude that the decoration of this room as a whole depicts a multiple-frame strategy for pursuing Wisdom (*Hagia Sophia/Logos*).”

was changed to:

“From these various depictions of reason, we may reasonably conclude that the decoration of this room as a whole depicts a multiple-frame strategy for pursuing **the Truth about Holy Wisdom (Hagia Sophia/Logos), which is a dualist version of pursuing the Truth about Wisdom (natural science).**

“[The published version of this work will contain two more sections.]”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2013.06.13

Appendix C, The Forgotten Role of Octagons, fifth paragraph, last four sentences

“The four putti pushing up the papal symbol stand at the center of the edges of the octagon nearest to the four circles that represent the boundless ends of poetry, philosophy, jurisprudence, and theology. Three of the four putti pulling down this symbol stand at the center of the edges nearest to earth, water, and air. The putto that ought to stand at the center of the edge nearest to fire, halfway between poetry and theology, instead sits on the corner of fire and theology, with his rope clearly in the domain of theology.⁴ Reinforcing this tension are the black clouds underlying the encircled female figure representing theology at the top of the ceiling, as opposed to the white clouds underlying justice, the mauve clouds underlying philosophy, and the pink clouds underlying poetry.”

“⁴ In a letter to Marcellinus of Carthage, Augustine of Hippo addressed this issue: “If anyone shall set the authority of Holy Writ against clear and manifest reason, he who does this knows not what he has undertaken; for he opposes to the truth not the meaning of the Bible, which is beyond his comprehension, but rather his own interpretation; not what is in the Bible, but what he has found in himself and imagines to be there.” In a letter to Christina of Lorraine concerning the use of biblical quotations in matters of science, Galileo Galilei used this quote to buttress the claim that the Bible concerns how to go to heaven, not how heaven goes. An English translation of Galileo’s letter is available online at <http://www.college.columbia.edu/core/sites/core/files/text/Galileo.pdf> (30 April 2013).”

were changed to:

“This greater tension in theology symbolizes the conflict between fervent beliefs about the pursuit of Wholeness and the true pursuit of Wholeness.”

Appendix C, The Forgotten Role of Octagons, second to last paragraph

“We can find a variation of the square-within-an-octagon-within-a-square theme of this boundless symbol of renaissance on the wall dedicated to the boundless end of jurisprudence (Justice). On the left, the chair of Emperor Justinian, an author of Roman law, sits directly on a square-tiled floor. On the right, the chair of Pope Gregory IX, an author of ecclesiastical law, sits on a square-on-octagon platform, which sits on a square-tiled floor:

[Photographs of Justinian and Gregory IX]

Justinian addresses problems that concern everyday living and Gregory IX address problems that concern living wisely. In the corner scene above and to the left of Justinian, Solomon must choose which of two woman is the mother of the child that

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

both claim to be theirs. In the corner scene above and to the right of Gregory IX, Adam and Eve must choose whether to learn to live wisely:”

was changed to:

“We can find a variation of the square-within-an-octagon-within-a-square theme on the wall dedicated to the boundless end of jurisprudence (Justice). On the left, the chair of Emperor Justinian sits directly on a square-tiled floor. On the right, the chair of Pope Gregory IX sits on a square-on-octagon platform, which sits on a square-tiled floor:

[Photographs of Justinian and Gregory IX]

Justinian, **an author of civil law**, addresses problems that concern everyday living. In the corner scene above and to the left of Justinian, Solomon must choose which of two woman is the mother of the child that both claim to be theirs. **In contrast, Gregory IX, an author of ecclesiastical law, addresses problems that concern living wisely.** In the corner scene above and to the right of Gregory IX, Adam and Eve must choose whether to learn to live wisely:”

Appendix C, The Forgotten Role of Octagons, last paragraph, last sentence

“From these various depictions of reason, we may reasonably conclude that the decoration of this room as a whole depicts a multiple-frame strategy for pursuing **the Truth about Holy Wisdom (*Hagia Sophia/Logos*), which is a dualist version of pursuing the Truth about Wisdom (natural science).**”

was changed to:

“From these various depictions of reason, we may reasonably conclude that the decoration of this room as a whole depicts a multiple-frame strategy for pursuing Holy Wisdom (*Hagia Sophia/Logos*).”

Changes in Version 2013.06.15

Chapter 3, Public Entropy, fifth paragraph, footnote, end

Added the following sentences:

“**Further complicating this issue is the knowledge intensity of the boundlessly pragmatic approach to finding problems to solve. Until people have achieved a critical mass in knowledge about pursuing the boundless factors of deciding well, they may be better off using bounded models. For more about this problem, see Appendix C.**”

Appendix C, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “warrior” to “lawyer” in the last sentence.

Appendix C, The Forgotten Role of Octagons, fifth paragraph, second sentence

“In pointing up, Plato tells us to aspire to a more refined form of the reasoning on which he and Aristotle stand, as represented by the square-within-an-octagon-within-a-square pattern on the floor beneath their feet.”

was changed to:

“In pointing up, Plato tells us to pursue Wisdom by pursuing Beauty, Wholeness, Justice, and the Truth. In holding his hand parallel to the ground, Aristotle tells us to know the world around us. In following the advice of both Plato and Aristotle, we aspire to a more refined form of the reasoning on which Plato and Aristotle stand, as represented by the square-within-an-octagon-within-a-square pattern on the floor beneath their feet.”

Changed “aspire” to “pursue Wisdom by pursuing Beauty, Wholeness, Justice, and the Truth. In doing so, he tells us to aspire” in the second sentence.

Appendix C, The Forgotten Role of Octagons, tenth paragraph

Changed “which sits” to “which in turn sits” in the third sentence.

Changed “must choose whether” to “choose” in the last sentence.

Appendix C, The Forgotten Role of Octagons, end

“Black Clouds in Theology

From a modern view, there exists an internal contradiction within the Roman Catholic pursuit of Holy Wisdom. We can see the metaphorical storm this conflict creates in the black clouds underlying the figure of Theology:

[Photograph of the Theology figure]

Compare these clouds with the clouds under the figures of Jurisprudence, Poetry, and Philosophy:

[Photographs of the Jurisprudence, Poetry, and Philosophy figures]

Arguably, the black clouds represent a storm; the white, full daylight; the pink, sunrise; and the mauve, morning twilight.

“In the scene above the oculus, this contradiction concerns an imbalance between poetry and theology. The four putti pushing up the papal symbol stand at the center of the edges of the octagon nearest to the four circles that represent the boundless ends of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

poetry, philosophy, jurisprudence, and theology. Three of the four putti pulling down this symbol stand at the center of the edges nearest to earth, water, and air. The putto that ought to stand at the center of the edge nearest to fire, halfway between poetry and theology, instead sits on the corner of fire and theology, with his rope clearly in the domain of theology. This greater tension in theology symbolizes the conflict between fervent beliefs about the pursuit of Wholeness and the true pursuit of Wholeness:

[Photograph of oculus moved from the fourth paragraph of this section]

Over a thousand years before Raphael painted this scene, Augustine of Hippo addressed this issue in a letter to Marcellinus of Carthage: “If anyone shall set the authority of Holy Writ against clear and manifest reason, he who does this knows not what he has undertaken; for he opposes to the truth not the meaning of the Bible, which is beyond his comprehension, but rather his own interpretation; not what is in the Bible, but what he has found in himself and imagines to be there.”⁶

“In the theology fresco, this contradiction concerns a conflict between art and the reason of Plato and Aristotle. We can see this conflict in the celestial figures in the upper left of the fresco. From the view of art, people are the measure of all things, of the existence of the things that are and the non-existence of the things that are not. Celestial beings are as realistically portrayed as the historical figures in the philosophy fresco are:

[Photograph of celestial beings in theology fresco]

In contrast, from the view of the reason of Plato and Aristotle, what some people perceive as celestial beings are natural phenomena that they do not yet fully understand. From this view, we ought to judge our beliefs by how useful they are in refining everyday thinking. Celestial beings of our world appear to be part of the white aether and the celestial beings beyond our world appear to be part of the golden aether.

“From the boundless view of deciding well, which is an imaginary view of the room as a whole, this internal contradiction concerns the problem of when we ought to use bounded models of the world to help us find problems to solve. We ought to do so only when the added benefit of using the boundless model of deciding well is not worth the extra cost of using it. The wiser we are, the less frequently this happens.”

“⁶ Over a hundred years after Raphael painted this scene, Galileo Galilei used this quote in an open letter to Christina of Lorraine in which he buttressed his claim that the Bible concerns how to go to heaven, not how heaven goes. The Inquisition banned this letter in all Catholic countries. An English translation of it is available online at <<http://www.college.columbia.edu/core/sites/core/files/text/Galileo.pdf>> (15 June 2013).”

Appendix C, end

Changed the bracketed note to reflect the addition of the section on black clouds.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2013.06.17

Appendix C, second paragraph

Changed “Julius II, the Renaissance lawyer who aspired to create a Christian empire based on what he and his advisors believed were the timeless values of classical Greece and Rome” to “Julius II in the early sixteenth century of the Common Era” in the last sentence.

Appendix C, The Forgotten Role of Octagons, fourth paragraph

“Also reinforcing this relation are the Greek and Roman crosses formed by rays emanating from the encircled dove on the wall fresco dedicated to the boundless end of theology (Wholeness):

[Photograph of the Holy Ghost in the theology fresco]

The dove represents the Holy Ghost, the mysterious divine element within ourselves. Pursuing the truth about this element calls for us to pursue the boundless end of deciding well, which in turn calls for us to pursue the truth about this mysterious element. In Roman Catholicism, the boundless end of deciding well is Holy Wisdom (*Hagia Sophia/Logos*).”

was inserted before the last paragraph and changed to:

“On the Theology Wall

We can find a visual variation of the octagon theme near the center of the wall fresco dedicated to theology. Here rays emanating from the encircled dove form superimposed Greek and Roman crosses:

[Photograph of the Holy Ghost in the theology fresco]

The dove represents the Holy Ghost, the mysterious divine element within ourselves. Pursuing the truth about this element calls for us to pursue the boundless end of deciding well, which in turn calls for us to pursue the truth about this mysterious element. In Roman Catholicism, the boundless end of deciding well is Holy Wisdom (*Hagia Sophia/Logos*).

“On the Poetry Wall”

Appendix C, The Forgotten Role of Octagons, new fifth paragraph, first sentence

“The next most important octagon is that on which Plato and Aristotle stand in the fresco below the philosophy circle:”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

The Philosophy Fresco

The next most important octagon is that on which Plato and Aristotle stand in the wall fresco **dedicated to** philosophy.”

Appendix C, *On the Philosophy Wall*, fifth paragraph

Inserted the subsection title: “***On the Jurisprudence Wall.***”

Appendix C, *On the Poetry Wall*, first paragraph

Changed “**in the visual** center” to “near the center” in the second sentence.

Changed “underlies **the boundless approach to**” to “underlies” in the fourth sentence.

Changed “reason” to “**two-part** reason” and “Holy Wisdom (***Hagia Sophia/Logos***)” to “Holy Wisdom” in the last sentence.

Appendix C, *Black Clouds in Theology*, second to last paragraph

Changed “**the reason of Plato and Aristotle**” to “**philosophy**” in all (2 occurrences).

Changed “**refining everyday thinking**” to “**pursuing Wisdom**” in the fifth sentence.

Changes in Version 2013.06.19

Appendix C, second paragraph

Added the footnote:

“**A bottom-up way of trying to understand the meaning of a work of art is to try to understand the worldview of the artist. In the case of the decoration of the room we now call the Stanza della Segnatura, an immediate problem we face in doing so is knowing who the artists were. The grotesque bands, roundels, and papal symbol in the ceiling contain the general plan for the work. Given that others painted these before Raphael received his commission to complete the work, no one can say with certainty who the author or authors of the plan were. In her scholarly work *Raphael's Stanza della Segnatura, Meaning and Invention* (Cambridge, England: Cambridge University Press, 2002), Christiane Joost-Gaugier speculates that it was the polymath Tommaso Inghirami. A top-down way of trying to understand the meaning of a work of art is to try to understand the work relative to current beliefs about the world. This appendix uses boundlessly pragmatic variations of these two means. The first two sections concern the meaning of the Stanza della Segnatura based on what Inghirami and those around him**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

likely knew about deciding well. The last section concerns the meaning of the work based on what we currently know about deciding well using the multiple-frame approach.”

Appendix C, The Forgotten Role of Octagons, second paragraph, footnote

“⁴ A high-resolution image of the entire ceiling is available online at http://upload.wikimedia.org/wikipedia/commons/9/90/Raphael_-_Ceiling_of_the_Selling_Room.jpg (30 April 2013).”

was changed to:

“⁴ High-resolution photographs of this room are available online at Wikipedia http://en.wikipedia.org/wiki/Raphael_Rooms (19 June 2013) and other locations.”

Appendix C, end

Added the following section:

“A Boundlessly Pragmatic View

To understand this room as a whole, we must consider not only the decoration on the ceiling and four walls, but also the floor. The first thing to notice about the floor is that it is a quadrangle with two parallel sides and two non-parallel sides. Given this asymmetric shape, it is not surprising that the symmetry of the ceiling beyond the oculus is so imperfect. The second thing we must consider is that the floor consists of a mishmash of different patterns separated by plain borders. With the exception of the borders along the non-parallel walls and the cursive borders within the large square with the crossed-keys symbol of the papacy at its center, these borders are either parallel or perpendicular to the two parallel walls. These parallel and perpendicular borders form rectangles that contain locally coherent patterns. By far the most complex of these patterns is the large square containing the symbol of the papacy at its center. From its position relative to the doors, which are on either side of the back wall, this was likely the main work area in the room:

[Photograph of Stanza della Segnatura floor]

With the exception of a symbol that crosses a border midway along the passage connecting to two doors at the back of the room, the fields of patterns defined by the rectilinear borders do not visually relate to each other. What coherence the floor has comes from the borders rather than the patterns of the fields.

“The system of organizing patterns in the floor reflects a rational mindset, a mindset concerned with knowing parts of the world as we currently find them, as opposed to the whole world as we may form it. In contrast, the system of organizing patterns in the ceiling reflects a (truly) beautiful mindset, a mindset concerned with knowing the whole

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

world as we may form it, as opposed to parts of the world as we currently find them. To decide well, we need both types of mindsets.

“We see both mindsets at work in the gestures of Plato and Aristotle just below the center of the philosophy fresco. We also see both at work in the figures closest to the altar just below the center of the theology fresco:

[Photograph of the theology fresco altar]

On the left, church doctors study books and gesture toward the monstrance on the altar, which represents the divine role of the church on earth. On the right, other church doctors gesture or gaze upward toward Wisdom.

“*The Role of Julius II*

Separating these two groups of church doctors is a rectangular altar decorated with a cursive gold pattern on an azure field. Across the center of the pattern is the name Julius (IV LI VS). The heraldic colors of this decoration match those of his family coat of arms (gold oak tree on an azure field). If we look closely at this decoration, we see that the cursive gold pattern is a knot worthy of Gordias. In this context, the knot symbolizes the problem of managing the conflicting goals of the two groups of church doctors. Those on the left aim at promoting known ecclesiastic forms. Those on the right aim at discovering better ecclesiastic forms. To manage this conflict well, Julius II needs to see the bigger picture. This rings true with the image of Julius as Gregory IX on the wall dedicated to jurisprudence, where the square-on-octagon platform on which he sits raises him above those around him. In managing this conflict, Julius supports neither side, but rather the program of the church, which is to bring ever more Wisdom into the world.

“Supporting the claim that Julius II ought to be an enlightened jurist, a supporter of bringing ever more Wisdom into the world are two subtle references to Julius II in the ceiling. The more prominent consists in the twelve wedge-shaped images of his family coat of arms, three around each of the four squares. The variety of sizes and shapes of these twelve images suggests that they are supporting rather than major parts of the ceiling:

[Photograph of the primer mover corner]

The major parts of the ceiling are the octagonal oculus, the four circles, and the four squares. Holding these major parts in place are wide gold bands connected by roundels.⁹ In contrast, narrow bands decorated with the heraldic colors of Julius II hold the twelve wedge-shaped images and the symbols for the four elements in place. If we imagine the gold bands as the load-bearing parts of this structure, the wedges and hourglass composites are fillers that add strength and resilience to the ceiling as a whole. The narrow bands in the heraldic colors of Julius II are the mortar that holds these filler parts in place.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Supporting the claim that Julius II ought to be an enlightened jurist is the name Julius in the arch that spans the wall dedicated to jurisprudence. What makes this symbol especially telling is its location to the left and below the center of the arch as we face the wall:

[Photograph of Jurisprudence arch]

By putting this symbol below the center of this arch rather than at the center of the arch, the authors of the decoration would have Julius II aspire to becoming an ever better jurist rather than an ever better philosopher king. By putting this symbol below the center of this arch rather than at the center of the oculus, the authors would have Julius II aspire to becoming an ever better jurist rather than ever more Christlike.

“We can see a reason why the authors would limit the aspirations of Julius II in the decoration of bands in the load-bearing structure of the ceiling. As we enhance our talent for recognizing patterns, we develop the ability to form in our mind’s eye ever more complex patterns. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we generate geometric patterns, such as those we see in the rectilinear bottom band. In the second, we generate natural patterns, such as those in the middle floral band. In the third, we generate patterns based on images from our unconscious minds, such as those in the golden bands filled with grotesque images that form most of the imaginary load-bearing structure in the ceiling.

“A great danger in pursuing this aspect of enlightenment is confusing beautiful patterns with patterns useful in deciding well. This is the problem of the putto that ought to stand at the center of the edge nearest to fire intruding into the realm of theology. The fact that some patterns from our unconscious mind are useful in deciding well does not mean that all patterns from our unconscious mind are useful in deciding well. We must judge these patterns by how well they ring true with everything we currently know about deciding well. We must then test those that ring true against experience.

“***Apollo and Marsyas***

Reinforcing the claim that the authors would have Julius II become an ever better jurist rather than an ever better philosopher king or ever more Christlike is the scene in the corner rectangle between the circles representing poetry and theology:

[Photograph of Apollo and Marsyas scene]

Here we see the victory celebration of a musical contest between Apollo and an intelligent and disciplined satyr named Marsyas. In this Greek myth, Marsyas challenges Apollo without fully understanding what his challenge entailed. In one version, Apollo not only played his lyre but also sang, which Marsyas was unable to do with his flute in his mouth. In another version, Marsyas initially outplayed Apollo, but then Apollo played his lyre upside down, a feat that Marsyas was unable to match with his flute. As a reward for defeating Marsyas, Apollo was given the right to have his way with

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Marsyas. He chose to have Marsyas skinned alive for the hubris of believing he could perform on the level of the gods.”

“^s The inspiration for looking not only at the ceiling and walls but also at the floor came from *Raphael’s Stanza della Segnatura, Meaning and Invention*.”

“^o At the center of these roundels are what appears to be lotus blossoms, a symbol of refinement, purity, and enlightenment.”

Changes in Version 2013.06.20

Appendix C

Incorporated edits recommended by Sally Osborn into the chapter.

Added the last section to the HTML file.

Appendix C, The Forgotten Role of Octagons, second paragraph

Changed “ceiling, **which is also the highest point in the room**” to “ceiling” in the first sentence.

Changes in Version 2013.06.29

Appendix A, A Modern Intelligence Test, eighth paragraph

Changed “bounded results” to “(bounded) results” in the fourth sentence.

Appendix C, A Boundlessly Pragmatic View, first paragraph

Changed “**we must consider**” to “**to notice**” in the fourth sentence.

Changed “floor” to “floor **as a whole**” in the last sentence.

Appendix C, A Boundlessly Pragmatic View, second paragraph

Changed “(truly)” to “**wholly**” in the second sentence.

Appendix C, A Boundlessly Pragmatic View, last paragraph

Changed “**must**” to “**ought to**” in the second to last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**must then**” to “then **ought to**” in the last sentence.

Appendix C, The Role of Julius II, second paragraph, last five sentences

“The major parts of the ceiling are the octagonal oculus, the four circles, and the four squares. Holding these major parts in place are wide gold bands connected by roundels.⁹ In contrast, narrow bands decorated with the heraldic colors of Julius II hold the twelve wedge-shaped images and the symbols for the four elements in place. If we imagine the gold bands as the load-bearing parts of this structure, the wedges and hourglass composites are fillers that add strength and resilience to the ceiling as a whole. The narrow bands in the heraldic colors of Julius II are the mortar that holds these filler parts in place.”

“⁹ At the center of these roundels are what appears to be lotus blossoms, a symbol of refinement, purity, and enlightenment.”

were changed to:

“We can easily imagine that the gold bands around the oculus, four circles, and four squares are the load-bearing parts of the ceiling structure and the hourglass composites are fillers that add strength and resilience to the ceiling as a whole. We can even imagine that the roundels join the load-bearing parts together. At the center of each of these roundels is what appears to be a lotus blossom, a symbol of purity in an impure world. Further, the narrow bands decorated with the heraldic colors of Julius II hold the filler parts in place. The decoration on these bands is an unknotted version of the altar pattern, a symbol of pursuing Wisdom well.”

Changes in Version 2013.07.02

The following changes were prompted by the need to convert the book into Kindle format.

Entire work (Kindle format)

Replaced bullet-point lists with Kindle-friendly formatting. Replaced unprintable special characters with approximates. Reduced size of indentations of paragraphs and block quotes. Changed spacing around block quotes. Changed size of some images. Added copyright page. Changed footnotes to endnotes. Added mistakenly erased sentence in the last paragraph of the acknowledgments on June 7, 2013.

Entire work (all formats)

Checked all twenty confirmed Internet links and changed their dates to (2 July 2013).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Acknowledgments, last paragraph (HTML only)

Inserted sentence mistakenly erased on June 7, 2007:

“John Harris pointed out people and habits worth imitating.”

Chapter 8, Eudaimonia, last paragraph, first footnote

“For more about Plato’s boundless view of reason, see Appendix C. Note that in likening governing our minds well to governing ourselves well, Plato also provided us with a bounded view of governing our minds well: In an ideal state, all citizens work together for the good of the state. In an ideal human mind, all parts work together for the good of the human. As we have seen, we ought to take the boundless view: In the ideal state, all citizens work together in deciding well. In the ideal human mind, all parts work together in deciding well.”

was changed to:

“Plato also provided us with a bounded view of governing our minds well in likening governing our minds well to governing ourselves well: In an ideal human mind, all parts work together for the good of the human. In an ideal state, all citizens work together for the good of the state. As we have seen, we ought to take the boundless view: In the ideal human mind, all parts work together in deciding well. In the ideal state, all citizens work together in deciding well. For more about Plato’s boundless view of reason and how it relates to governing our minds well, see Appendix C.”

Appendix A, title quotes, second quote

““In mathematics the art of proposing a question must be held of higher value than solving it.” — *Georg Cantor*”

“Cantor, Georg, “De aequationibus secundi gradus indeterminatis” (Doctoral dissertation, University of Berlin, 1867).”

was deleted.

Appendix C, *Apollo and Marsyas*, last paragraph, end

Added the sentence:

“Apollo then put the hide of Marsyas to use as a wineskin.”

Changes in Version 2013.07.03

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

The following changes were prompted by the need to convert the book into Kindle format.

Entire work, all formats

Removed section headings immediately after chapter headings in all chapters and appendices.

Chapter 1, Seeing Through Apparent Miracles, first paragraph

Changed “is less costly” to “costs less” in all (6 occurrences in the first three bullet points).

Chapter 4, Refining Natural Science, title

Changed title to “Refining Everyday Thinking.”

Changes in Version 2013.07.12

Preface, tenth paragraph

Changed “approach” to “complex approach” in the first sentence.

Chapter 1, Values, last paragraph

“The process of deciding well calls for refining the process of deciding well. To refine this process well, we need a means of breaking it down into wieldier problems. One way involves breaking down **Wisdom into universally useful resources for deciding well that we can never have in excess. We may call these aspects of Wisdom *boundless factors of deciding well***. Taken together, the pursuits of these boundless factors form a **complex** model of deciding well. We can use this model to judge whether the problems we find “ring true” with all that we currently know about deciding well. If they do, we have found a “beautiful” problem to solve.”

was changed to:

“**We may think of the Truth as being a factor of deciding well that we can never have in excess. We may call such factors *boundless factors of deciding well***.”

“The process of deciding well calls for refining the process of deciding well. To refine this process well, we need a means of breaking it down into wieldier problems. One way involves breaking down **the process of deciding well into the processes of pursuing the boundless factors of deciding well**. Taken together, the pursuits of these boundless factors form a ***multiple-frame*** model of deciding well. We can use this **complex** model

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

to judge whether the problems we find “ring true” with all that we currently know about deciding well. If they do, we have found a “beautiful” problem to solve.”

Appendix B, Temporal Details, first paragraph, footnote, last two sentences

“Today, these tools fit so neatly into the Toyota system that they might have emerged from it. In the near future, additive manufacturing tools (3D printers) will begin to replace traditional tools. As they do, Toyota factories will become even leaner.”

were changed to:

“It should accommodate additive manufacturing tools and other new technology as easily.”

Appendix C, introduction, last paragraph, footnote

“A bottom-up way of trying to understand the meaning of a work of art is to try to understand the worldview of the artist. In the case of the decoration of the room we now call the Stanza della Segnatura, an immediate problem we face in doing so is knowing who the artists were. The grotesque bands, roundels, and papal symbol in the ceiling contain the general plan for the work. Given that others painted these before Raphael received his commission to complete the work, no one can say with certainty who the author or authors of the plan were. In her scholarly work *Raphael's Stanza della Segnatura, Meaning and Invention* (Cambridge, England: Cambridge University Press, 2002), Christiane Joost-Gaugier speculates that it was the polymath Tommaso Inghirami. A top-down way of trying to understand the meaning of a work of art is to try to understand the work relative to current beliefs about the world. This appendix uses boundlessly pragmatic variations of these two means. The first two sections concern the meaning of the Stanza della Segnatura based on what Inghirami and those around him likely knew about deciding well. The last section concerns the meaning of the work based on what we currently know about deciding well using the multiple-frame approach.”

was changed to:

“The key to understanding the Stanza della Segnatura is its ceiling, which was well underway before Raphael received his commission to complete the work. In her scholarly work *Raphael's Stanza della Segnatura, Meaning and Invention* (Cambridge, England: Cambridge University Press, 2002), Christiane Joost-Gaugier speculated that Tommaso Inghirami was its chief designer. From the boundless view, we may base our interpretations of art either on what its creators knew or on what we currently know about deciding well. The first two sections of this appendix uses the former and the third uses the latter.”

Appendix C, Black Clouds in Theology, fourth paragraph, second sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From this view, we ought to judge our beliefs by how useful they are in pursuing Wisdom.”

was deleted.

Merged paragraph with the second paragraph.

Appendix C, Black Clouds in Theology, last paragraph

“From the boundless view of deciding well, which is an imaginary view of the room as a whole, this contradiction concerns the problem of when we ought to use bounded models of the world to help us find problems to solve. We ought to do so only when the added benefit of using the boundless model of deciding well is not worth the extra cost of using it. The wiser we are, the less frequently this happens.”

was moved to the end of the **A Boundlessly Pragmatic View** and changed to:

“The black clouds in theology concern the problem of when we ought to use bounded models of the world to help us find problems to solve. We ought to do so only when the added benefit of using the boundless model of deciding well is not worth the extra cost of using it. The wiser we are, the less frequently this happens.”

Appendix C, A Boundlessly Pragmatic View, title

Changed title to “A Boundless View of the Whole.”

Changes in Version 2013.07.16

Entire document (Word version)

Added appendix title to all footnotes referencing appendices (5 occurrence). Removed section titles immediately following chapter or appendix title from all chapters and appendices. Renumbered Table of Contents. These two changes make the Word version more like the Kindle version.

Chapter 1, *Ever More Complete Multiple-Frame Models*, second paragraph, first sentence

“Deciding well calls for us to fit our beliefs together based on the symmetry of deciding well.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Pursuing any boundless factor well calls for us to decide well, which in turn calls for us to pursue all boundless factors well. For example, pursuing the Truth calls for us to decide well, which in turn calls for us to pursue Happiness. Similarly, pursuing Happiness calls for us to decide well, which in turn calls for us to pursue the Truth. Deciding well calls for us to fit our beliefs together based on **this** symmetric structure of deciding well.”

Chapter 4, *Academic Fields*, fourth paragraph, footnote

In the Kindle version, promoted the endnote to a parenthesized sentence in the body of the text:

“(For more about game theory and biological evolution, see the chapter on competing well.)”

In other versions, changed “**seventh** chapter” to “chapter **on competing well**” in the first sentence.

Chapter 5, *The Explicit Experiment*, second paragraph

Removed quotation marks from block quote.

Chapter 6, Pursuing Eternal Oneness, last paragraph

Changed “**Religions that help us live well**” to “**Worldly religions**” in the second and last sentences (2 occurrences).

Chapter 7, *E-M Theory*, first paragraph

Changed “**for six years.**” to “.” in the third sentence.

Changed “**a widely used manual** on aerial combat” to “**the first text** on aerial combat **tactics, which became the tactics manual for air forces around the world**” in the fourth sentence.

Chapter 7, *E-M Theory*, second paragraph

Changed “inferior” to “**often** inferior” in the second sentence.

Changed “**people**” to “**pilots**” and “**they**” to “**engineers**” in the first sentence.

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote, end

Added the sentence:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“For more about sophistry and its relation to philosophy, see Appendix C (Renaissance Art).”

Appendix C, *On the Philosophy Wall*, first paragraph

Changed “reasoning” to “two-part reasoning” in the last sentence.

Appendix C, *On the Jurisprudence Wall*, last paragraph

Changed “to learn” to “to become people by choosing to learn” in the last sentence.

Changes in Version 2013.07.22

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote, first three sentences

“Boyd saw patterns in the way we compete to live well. He wanted to explain these patterns using a decision-cycle model that included learning-by-doing. Regrettably, he based his model on modern interpretations of biological evolution, quantum mechanics, and Gödel’s incompleteness theorems. We see the resulting sophistry most clearly in his essay *Destruction and Creation*. For more about sophistry and its relation to philosophy, see Appendix C (Renaissance Art).”

were changed to:

“Unlike the strategic decision-cycle model put forth in the preface of this book, OODA loop decision-cycles do not explicitly include learning from experience. Boyd addressed this limitation by adding learning to the OODA-loop orientation step. This solution allowed him to apply his analysis on all problem scale levels that do not consider changing the OODA loop itself, an action he believed would violate Gödel’s incompleteness theorems. For more about Boyd’s modern-biological/modern-dialectical approach to learning, read his essay *Destruction and Creation*.”

Chapter 8, *Eudaemonia*, last paragraph, first footnote

Changed “citizens” to “people” in the third sentence.

Changed “reason and how it relates to governing our minds well” to “and” in the last sentence.

Appendix C, *The Role of Julius II*, third paragraph

Changed “the hourglass composites are fillers that add” to “that the hourglass composites are fillers adding” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2013.07.22

Chapter 3, Overcoming Constraints in Deciding Well, last paragraph

Changed “invent” to “invent **or discover**” and “people” to “people **invent or discover**” in the second sentence.

Chapter 3, The Elephant in the Room, last paragraph

Changed “**for** certain” to “**with complete** certainty” in the second sentence.

Chapter 7, OODA Loop Analysis, second paragraph, eighth and ninth sentences

“Further, it gave them **more options. Unlike American P-38 pilots fighting against Japanese pilots in slower, but more maneuverable Zero fighter planes a decade earlier, F-86 pilots fighting MiG-15 pilots were not limited to a single tactic.**”

were changed to:

“Further, it gave them **the time to consider how best to force their opponents to make mistakes.**”

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote

Changed “problem scale” to “problem-scale” in the third sentence.

Appendix C, *On the Theology Wall*, last paragraph

Changed “**In** Roman Catholicism” to “**For** Roman Catholics” in the last sentence.

Appendix C, *On the Poetry Wall*, first paragraph

Changed “**diatonic** (eight-note, repeating-octave scale) melodies” to “**an** eight-note, repeating-octave scale melody” in the third sentence.

Appendix C, A Boundless View of the Whole, last paragraph, last three sentences

“**The black clouds in theology concern the problem of when we ought to use bounded models of the world to help us find problems to solve. We ought to do so only when the added benefit of using the boundless model of deciding well is not worth the extra cost of using it. The wiser we are, the less frequently this happens.**”

were deleted.

Appendix C, *The Role of Julius II*, fourth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**ever more complex** patterns” to “patterns **that are ever more imaginative**” in the second sentence.

Appendix C, *The Role of Julius II*, last paragraph, second sentence

“**This is the problem of the putto that ought to stand at the center of the edge nearest to fire intruding into the realm of theology.**”

was deleted.

Changes in Version 2013.07.25

Appendix C, *Black Clouds in Theology*, last paragraph

Changed “**Celestial**” to “**From this artistic view of the view of art, celestial**” in the third sentence.

Changed “**some** people” to “people perceive” in the fourth sentence.

Changed “**Celestial**” to “**From the artistic view of the view of philosophy, celestial**” in the last sentence.

Appendix C, *The Role of Julius II*, second paragraph

“Reinforcing the claim that Julius II ought to be an enlightened jurist , **a supporter of bringing ever more Wisdom into the world**, are two subtle references to Julius II in the ceiling. The more prominent consists in the twelve wedge-shaped images of his family coat of arms, three around each of the four squares. The variety of sizes and shapes of these twelve images suggests that they are **supporting rather than** major parts of the ceiling:”

[Image of Urania corner of the ceiling]

“We can easily imagine that the gold bands around the oculus, four circles, **and four squares are the load-bearing parts of the ceiling structure and that the hourglass composites are fillers adding strength and resilience to the ceiling as a whole. We can even imagine that the roundels join the load-bearing parts together. At the center of each of these roundels is what appears to be a lotus blossom, a symbol of purity in an impure world. Further, the narrow bands decorated with the heraldic colors of Julius II hold the filler parts in place.** The decoration on these bands is an unknotted version of the altar pattern, **a symbol of pursuing Wisdom well.**”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Reinforcing the claim that Julius II ought to be an enlightened jurist are two subtle references to Julius II in the ceiling. The more prominent consists in the twelve wedge-shaped images of his family coat of arms, three around each of the four squares. The variety of sizes and shapes of these twelve images suggests that they are not major parts of the ceiling:”

[Image of Urania corner of the ceiling]

“We can easily imagine that the gold bands around the oculus, four circles, four squares, and lotus-blossom roundels are the load-bearing parts of the ceiling structure. Adding strength and resilience to this structure are twelve wedge and four hourglass fillers. Holding these “worldly” fillers in place are narrow bands decorated with the heraldic colors of Julius II. The decoration on these bands is an unknotted version of the altar pattern.”

Appendix C, *The Role of Julius II*, third paragraph

Changed “Supporting the claim that Julius II ought to be an enlightened jurist” to “The less prominent reference” in the first sentence.

Appendix C, *The Role of Julius II*, third paragraph, last two sentences

“By putting this symbol below the center of this arch rather than at the center of the arch, the authors of the decoration would have Julius II aspire to becoming an ever better jurist rather than an ever better philosopher king. By putting this symbol below the center of this arch rather than at the center of the oculus, the authors would have Julius II aspire to becoming an ever better jurist rather than ever more Christlike.”

were changed to:

“By putting this symbol below the center of this arch rather than at the center of the oculus, the authors of this room would have Julius II aspire to become an ever better jurist rather than ever more Christlike.”

Appendix C, *The Role of Julius II*, fourth paragraph

Changed “reason why the authors would limit the aspirations of Julius II” to “reason for this” in the first sentence.

Changed “decoration of the bands in the load-bearing structure” to “decorative bands of the imaginary load-bearing structure” in the first sentence.

Changed “in our mind’s eye patterns that are ever more imaginative” to “imaginative patterns in our mind’s eye” in the second sentence.

Changed “load-bearing structure in the ceiling” to “structure” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, *The Role of Julius II*, last paragraph

“A great danger in pursuing this aspect of enlightenment is confusing beautiful patterns with patterns useful in deciding well. We ought to judge these patterns by how well they ring true with everything we currently know about deciding well. We then ought to test those that ring true against experience. The fact that some patterns from our unconscious mind are useful in deciding well does not mean that all patterns from our unconscious mind are useful in deciding well.”

was changed to:

“A great danger in pursuing this aspect of enlightenment is confusing patterns that ring true with what we currently believe with patterns that are truly useful in deciding well. We ought to judge patterns by how well they ring true with everything we currently know about deciding well. We then ought to test those that ring true against experience.”

Appendix C, *Apollo and Marsyas*, first paragraph

Changed “an ever better philosopher king or ever more Christlike” to “ever more Christlike” in the first sentence.

Changed “was given” to “had” in the third to last sentence.

Changes in Version 2013.07.27

Chapter 3, introduction, last paragraph, footnote

“² For more about the relation between beauty and enlightenment, see Appendix C (Renaissance Art).”

was deleted.

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, fourth paragraph, end

Added the footnote:

“⁸ This interpretation of quantum mechanics contradicts physicist John Bell’s claim that if hidden variables that explain entanglement exist, they are not local. Decades of experiments have failed to disprove this claim. Disproving it would damage the boundlessly pragmatic argument for free will, which depends on the claim that the existence of free will rings true with all that we currently know about pursuing the boundless end of deciding well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 7, *Boyd's Grand Strategy*, last paragraph, footnote

Changed “itself, an action he believed would violate Gödel’s incompleteness theorems” to “itself. Applying learning to the OODA loop itself would expose the incompleteness of his decision-cycle theory” in the third sentence.

Appendix C, The Forgotten Role of Octagons, second paragraph

Changed “From the boundless view, the” to “The” in the fifth sentence.

Appendix C, The Forgotten Role of Octagons, last paragraph

Changed “the boundless view” to “a Roman Catholic view” in the last sentence.

Changed “the means of learning ever more about the world (Wisdom)” to “Holy Wisdom (*Hagia Sophia/Logos*)” in the last sentence.

Appendix C, Black Clouds in Theology, first paragraph

Changed “morning twilight” to “dawn” in the last sentence.

Changes in Version 2013.08.06

Preface, eighth paragraph

Changed “as parts of” to “as” in the second sentence.

Chapter 1, Choosing Frames Well, first paragraph, footnote

Changed “boundless concept” to “concept” in the second sentence.

Chapter 1, *Useful Frames*, entire section

“*Useful Frames*”

Addressing the problem of choosing frames well by deciding well calls for understanding what makes frames useful in deciding well. Useful frames are frames that help us achieve our ends. Some ends concern events. Because events have bounds in time, we may call these *bounded ends*. Winning a basketball game is a *bounded* end. Other ends concern processes. Because processes have no bounds in time, we may call these *boundless ends*. Playing basketball well is a *boundless* end.

“In pursuing the boundless end of deciding well, we benefit from frames that help us solve problems that have bounded ends. We may call these *bounded frames*. We also

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

benefit from frames that help us find problems to solve. We may call these *boundless frames*.

“**Bounded** and **boundless** frames differ in their concepts of *excellence in means*. From a **bounded** frame, excellence in means is excellence in solving problems. **We may call this efficiency. We base this concept of excellence in means on what we know and on what we may learn that is useful for solving the bounded problem we have chosen to solve.** A formal decision *event* consists of formulating solutions to the given problem, evaluating these solutions, choosing a solution, and implementing the chosen solution.

“In contrast, from a boundless frame, excellence in means is not only **excellence in solving problems**, but also excellence in choosing problems to solve. **We may call excellence in choosing problems to solve effectiveness.**⁶ **We base this concept of excellence in means on what we know and what we may learn that is useful in addressing the boundless problem we have chosen to address.** A formal decision *process* is the endlessly repeating cycle of (1) finding a **bounded** problem to solve that appears to be in line with our **boundless** end, (2) formulating various solutions to this problem, (3) evaluating these solutions, (4) choosing a solution, (5) implementing the chosen solution, and (6) learning from the experience. **Given our limited knowledge relative to the infinitely large problem we face, we cannot avoid making mistakes. When we make mistakes, we embed new mistakes into, or reinforce existing mistakes in, our networks of knowledge-in-use. These networks include our markets, technologies, legal systems, languages, sciences, and cultures. If we are wise, we learn from our mistakes. If we are wise, we learn to muddle forward ever more wisely.**”

was changed to:

“**Temporal and Timeless Frames**

Addressing the problem of choosing frames well by deciding well calls for understanding what makes frames useful in deciding well. Useful frames are frames that help us achieve our ends. Some ends concern events. Because events have bounds in time, we may call these *temporal ends*. Winning a basketball game is a **temporal** end. **We may call frames that help us achieve temporal ends *temporal frames*.**

“Other ends concern processes. Because processes have no bounds in time, we may call these *timeless ends*. Playing basketball well is a **timeless** end. **We may call frames that help us achieve timeless ends *timeless frames*.**

“**Temporal** and **timeless** frames differ in their concepts of *excellence in means*. From a **temporal** frame, excellence in means is *efficiency*, excellence in solving **given** problems. A formal decision *event* consists of formulating solutions to the given problem, evaluating these solutions, choosing a solution, and implementing the chosen solution.

“In contrast, from a **timeless** frame, excellence in means is not only *efficiency*, but also *effectiveness*, excellence in choosing problems to solve.⁶ A formal decision *process* is the endlessly repeating cycle of (1) finding a **temporal** problem to solve that appears to

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

be in line with our **timeless** end, (2) formulating various solutions to this problem, (3) evaluating these solutions, (4) choosing a solution, (5) implementing the chosen solution, and (6) learning from the experience.”

Chapter 1, *The EOQ/RTS Example*, first paragraph

Changed “**bounded** and **boundless** frames” to “**temporal** and **timeless** frames” in the first sentence.

Changed “**bounded**” to “**temporal**” in the second sentence.

Changed “**boundless**” to “**timeless**” in the last sentence.

Chapter 1, *The EOQ/RTS Example*, third paragraph

Changed “**bounded**” to “**temporal**” in the first sentence.

Chapter 1, *The EOQ/RTS Example*, fourth paragraph

Changed “**boundless**” to “**timeless**” in the second sentence.

Chapter 1, *Seeing Through Apparent Miracles*, third paragraph

Changed “**boundless**” to “**timeless**” in the last sentence.

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Changed “**bounded**” to “**temporal**” in the first sentence.

Changed “**boundless**” to “**timeless**” in the fourth sentence.

Changed “**the values we use to help us decide**” to “**boundless frames**” in the last sentence.

Chapter 1, *Values*, title and first three paragraphs

“**Boundless Values**”

We have seen how the **boundless** concept of deciding well can help us find better **temporal** (temporally bounded) problems to solve. We can also use it to help us find better **timeless** (temporally boundless) problems to solve. This calls for distinguishing between bounded and boundless values. Bounded values are values we base on what we currently know. Boundless values are values we base on what we need to know in order to pursue boundless ends well, which, as we shall see, are aspects of the boundless end of deciding well.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In discussing **bounded and** boundless **values**, we can avoid much tedium and confusion by capitalizing **boundless values**. Using this convention, we may call the boundless end of deciding well *Wisdom* and the boundless end of believing well *the Truth*. If we define ‘religion’ to mean the pursuit of linking (or re-linking) with something infinitely greater than ourselves and ‘theism’ to mean belief in the existence of the divine, this convention has religious overtones that may or may not be theistic.

“A major difference between bounded and boundless values is their source. From a **bounded** view of deciding well, people base their values on what they currently know. The **bounded** concept of deciding well does not include learning ever more about values. People must look beyond the problem at hand to find sources for their values. These outside sources include such things as theistic texts, political ideologies, and moral philosophies. In contrast, from a **boundless** view of deciding well, we base our values on what we need to know in order to pursue boundless ends well. **We learn ever more about these values by pursuing the boundless end of believing well (the Truth).**¹⁰”

“¹⁰ **Note that** taking a boundless view of deciding well does not call for us to abandon the study of texts. It only calls for us to interpret texts in the light of pursuing Wisdom. **Note too** that the change in case from the third person to the first person is not a mistake. **As we shall see**, we cannot separate the boundless problems we face from the boundless problems all other people face.”

were changed to:

“**The Boundless Model**

In framing the world, we use bounds to separate what lies within the frame from what lies outside it. As we saw in the EOQ/RTS model, these bounds can blind us to finding better problems to solve. This holds true not only for temporal frames, but also for timeless ones: playing basketball well does not include swimming well.

“If we believe that thinking reasonably is the same as thinking logically, then all frames are bounded. When we reduce our sensations of the world to a logical model, we always leave something out of our model. There are no boundless frames. On the other hand, if we believe that thinking reasonably is more than thinking logically, we may combine timeless frames to form a reasonable model of deciding well that when applied to itself an infinite number of times leaves nothing out. As aspects of this boundless model, these timeless frames are boundless.

“In discussing **the ends of** boundless **frames**, we can avoid much tedium and confusion by capitalizing **them**. Using this convention, we may call the boundless end of deciding well *Wisdom* and the boundless end of believing well *the Truth*. If we define ‘religion’ to mean the pursuit of linking (or re-linking) with something infinitely greater than ourselves and ‘theism’ to mean belief in the existence of the divine, this convention has religious overtones that may or may not be theistic.¹⁰

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The Truth and Wisdom

We learn ever more about pursuing the boundless end of deciding well (Wisdom) by pursuing the boundless end of believing well (the Truth).”

“¹⁰ We may think of these boundless ends as values. A major difference between bounded and boundless values is their source. From a modern view of deciding well, people base their values on what they currently know. The modern concept of deciding well does not include learning ever more about values. People must look beyond the problem at hand to find sources for their values. These outside sources include such things as theistic texts, political ideologies, and moral philosophies. In contrast, from the boundless view of deciding well, we base our values on what we need to know in order to pursue the boundless end of deciding well (Wisdom). Taking a boundless view of deciding well does not call for us to abandon the study of texts. It only calls for us to interpret texts in the light of pursuing Wisdom. Note that the change in case from the third person to the first person is not a mistake. We cannot separate the boundless problems we face from the boundless problems all other people face.”

Chapter 1, The Truth and Wisdom, fourth paragraph, footnote

Changed “thoroughly bounded” to “temporal” in the last sentence.

Chapter 1, The Truth and Wisdom, fifth paragraph

Changed “bounded” to “modern” in the first sentence.

Changed “a boundless view” to “the boundless view of believing well” and “we pursue” to “end of believing well (the Truth)” in the third sentence.

Chapter 3, Contemplating the Way Forward, third paragraph

Changed “boundless” to “timeless” in the last sentence.

Chapter 3, Contemplating the Way Forward, last paragraph

Changed “boundless” to “timeless” in the last sentence.

Chapter 3, Overcoming Constraints in Deciding Well, last paragraph, footnote

Changed “boundless” to “timeless” in the last sentence.

Chapter 3, Public Order, last paragraph

Changed “bounded (current)” to “current” in the fifth sentence.

Changed “bounded public order” to “current public order” in the fourth and fifth sentences.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “*fabric of civilization, the interwoven networks*” to “*networks*” in the fifth sentence.

Chapter 3, *A Boundlessly-Pragmatic Interpretation of Quantum Mechanics*, seventh paragraph

“To decide well, we need not only bounded descriptions of the world to help us solve given problems, but also boundless descriptions of the world to help us find better problems to solve. The complex approach to deciding well put forth in this work provides us not only with bounded descriptions of the world to help us solve given problems, but also with coherent sets of boundless descriptions of the world to help us find better problems to solve. These multiple-frame models concern not the world as we currently find it, but rather the world as we may form it.”

was deleted.

Chapter 4, *Self-Similarity*, last paragraph

Changed “*knowledge-in-use*” to “*knowledge-in-use in our markets, technologies, legal systems, languages, and cultures*” in the last sentence.

Chapter 4, *Academic Fields*, first paragraph

Changed “*boundless*” to “*timeless*” in the third sentence.

Chapter 4, *Academic Fields*, second paragraph

Changed “*bounded categories*” to “*categories*” in the fourth sentence.

Chapter 4, *Refining Finding Problems to Solve*, first paragraph

Changed “*; that is, into our markets, technologies, legal systems, languages, and cultures.*” to “*.*” in the second sentence.

Chapter 5, *The Explicit Experiment*, second paragraph

Changed “*boundless experiment*” to “*political experiment*” in the fourth sentence.

Chapter 5, *The Explicit Experiment*, last paragraph, footnote

Changed “*boundless political experiment*” to “*political experiment*” in the first sentence.

Chapter 5, *Pursue Boundless, not Bounded Order*, title

Changed title to “*Pursue Boundless, not Current Order.*”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, *Pursue Boundless, not Current Order*, first paragraph

Changed “**bounded**” to “**current**” in the second and third sentences (2 occurrences).

Changed “civilization **as a whole is threatened**” to “**turbulence threatens** civilization” in the second sentences.

Chapter 6, introduction, first paragraph

Changed “**boundless**” to “**timeless**” in the last sentence.

Chapter 6, *Being Needs*, first paragraph

Changed “**boundless**” to “**timeless**” in the second sentence.

Chapter 6, *Pursuing Eternal Oneness*, first paragraph

Changed “**boundless**” to “**timeless**” in the second sentence.

Chapter 7, *OODA Loop Analysis*, third paragraph

Changed “**boundless**” to “**timeless**” in all (3 occurrences).

Chapter 7, *Boyd's Grand Strategy*, last paragraph

Changed “view” to “**timeless view**” in the last sentence.

Chapter 7, *The Scope of Biological Evolution*, last paragraph

Changed “**a boundless view**” to “**the boundless view**” in the last sentence.

Chapter 8, introduction, fourth paragraph

Changed “**boundless**” to “**timeless**” in all (5 occurrences).

Chapter 8, introduction, fifth paragraph

Changed “pursuing the boundless end of deciding well **by pursuing the boundless factors of deciding well**” to “pursuing the boundless end of deciding well” in the first sentence.

Changed “**(coherent sets of) single-frame**” to “**multiple-frame**” in the third sentence.

Chapter 8, introduction, sixth paragraph

Changed “**any group of these**” to “these” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “stop” to “halt” in the last sentence.

Chapter 8, introduction, sixth paragraph, last footnote

Changed “boundless” to “timeless” in the first three sentences (2 occurrences).

Chapter 8, Eudaemonia, first paragraph

Changed “Pursuing the boundless end of deciding well using the boundless approach” to “Pursuing the boundless end of deciding well” in the first sentence.

Appendix C, introduction, last paragraph, footnote, last two sentences

“From the boundless view, we may base our interpretations of art either on what its creators knew or on what we currently know about deciding well. The first two sections of this appendix use the former and the third uses the latter.”

were changed to:

“The inspiration to consider the decoration of the room as a whole, including the floor, came from this book.”

Appendix C, The Forgotten Role of Octagons, last paragraph, last sentence

“From a Roman Catholic view, this Tantalean image represents the mission of learning ever more about both the world and Holy Wisdom (*Hagia Sophia/Logos*).”

was changed to:

“From the boundless view, this Tantalean image represents the mission of learning ever more about both the world and Wisdom.”

Appendix C, Black Clouds in Theology, first paragraph, first two sentences

“From a modern view, there exists an internal contradiction within the Roman Catholic pursuit of Holy Wisdom. We can see the metaphorical storm this conflict creates in the black clouds underlying the figure of Theology:”

were changed to:

“There exists a dispute within the Roman Catholic pursuit of Holy Wisdom. We can see the metaphorical storm this dispute creates in the black clouds underlying the figure of Theology:”

Appendix C, Black Clouds in Theology, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**contradiction**” to “**dispute**” in the first sentence.

Appendix C, Black Clouds in Theology, last paragraph, first four sentences

“In the theology fresco, this **contradiction** concerns a conflict between **art** and philosophy. We can see this conflict in the celestial figures in the upper left of the fresco. From the view of **art**, people are the measure of all things, of the existence of the things that are and the non-existence of the things that are not. **From this artistic view of the view of art, celestial beings are as realistically portrayed** as the historical figures in the philosophy fresco:”

were changed to:

“In the theology fresco, this **dispute** concerns a conflict between **poetry** and philosophy. We can see this conflict in the celestial figures in the upper left of the fresco. From the view of poetry, people are the measure of all things, of the existence of the things that are and the non-existence of the things that are not. **Celestial beings appear to be as real** as the historical figures in the philosophy fresco:”

Appendix C, Black Clouds in Theology, last paragraph

Changed “**From the artistic view of the view of philosophy, celestial**” to “**Celestial**” in the last sentence.

Appendix C, On the Poetry Wall, first paragraph

Changed “this **octagon**” to “this” in the first sentence.

Appendix C, A Boundless View of the Whole, first paragraph, footnote

“**The inspiration to look not only at the ceiling and walls but also at the floor came from Raphael’s Stanza della Segnatura, Meaning and Invention.**”

was deleted.

Changes in Version 2013.08.07

Chapter 1, The Truth and Wisdom, second to last paragraph

“**We may think of the Truth as being a factor of deciding well that we can never have in excess. We may call such factors *boundless factors of deciding well.***”

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *The Truth and Wisdom*, last paragraph, second sentence

“One way involves breaking down the process of deciding well into the processes of pursuing **the** boundless factors **of deciding well.**”

was changed to:

“One way involves breaking down the process of deciding well into the processes of pursuing **universally useful knowledge resources that we can never have in excess. We may call these knowledge resources *boundless factors of deciding well*. The boundless end of believing well (the Truth) is one such** boundless factor.”

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, last paragraph

Changed “certainty equivalent” to “**discounted** certainty equivalent” in all (2 occurrences).

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, last paragraph, footnote, end

Added the sentences:

“**Discounting is a method of accounting for the time value of (the use of) money. In our age of low-cost computing, the best means of discounting certainty equivalents uses a yield curve rather than a single interest rate.**”

Appendix C, *On the Jurisprudence Wall*, first paragraph

Changed “**everyday** living” to “living **well**” in the fourth sentence.

Added “**the corner touching the philosophy wall,**” to the fifth sentence.

Added “**the corner touching the theology wall,**” to the last sentence.

Changes in Version 2013.08.08

Chapter 1, *Choosing Frames Well*, last paragraph, footnote

Changed “**Patterns**” to “**Forms**” in the last sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph

Moved footnote to last section of preceding subsection.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “three” to “four” in the first sentence.

Changed “three steps” to “four steps” in the first sentence.

Added the following sentence to the end of the paragraph:

“The last is reconciling the model as best as we can, given our current ignorance of not only the current state of the world, but also of all possible future states of the world.¹⁴”

“¹⁴ More accurately, this step concerns reconciling these frames as best as we can do given our current ignorance of not only the current quantum state of the world, but also all future quantum states of the world. Our ignorance includes not knowing whether time is truly absolute, relativistic, or something else.”

Appendix A, title

Changed title to “Science of Forms.”

Appendix A, Indispensable Patterns, title

Changed “Patterns” to “Forms” in the title.

Appendix A, Indispensable Forms, last paragraph

Changed “patterns” to “forms (patterns)” and “*science of patterns*” to “*science of forms*” in the first sentence.

Changed “a pattern problem” to “an information problem” in the second sentence.

Appendix C, The Forgotten Role of Octagons, second to last paragraph

Changed “fifth element” to “mysterious fifth element” in the first sentence.

Moved paragraph (including photograph) to the end of the section.

Changes in Version 2013.08.10

Preface, fourth from the last paragraph

Changed “useful” to “wise” in the first sentence.

Chapter 1, *The Truth and Wisdom*, sixth paragraph

Changed “modern view” to “modern view of believing well” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “boundless view of **believing**” to “boundless view of **deciding**” in the third sentence.

Chapter 1, *The Truth and Wisdom*, last paragraph

Changed “**this complex** model” to “**these multiple-frame** models” in the second to last sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph

Changed “**multiple-frame** “view” of this approach” to “view of this **boundless** approach to **deciding well**” in the last sentence.

Appendix A, introduction, second to last paragraph, third and fourth sentences

“To do so, **we modify the method that displays objects with character Y. Specifically,** we replace the function that replaces the rightmost vertex and sides with a function that replaces all points to the right of the center of the circumscribing circle.”

were changed to:

“To do so, we replace the function that replaces the rightmost vertex and sides with a function that replaces all points to the right of the center of the circumscribing circle.”

Appendix A, introduction, first paragraph, second sentence

“**We are given the first series of two objects and the first object in the second series:**”

was deleted. (Period changed to a colon in the first sentence.)

Appendix A, *The Big Picture*, second paragraph

Changed “**to be found by**” to “**to make ourselves known to**” in the fourth sentence.

Appendix C, *The Role of Julius II*, second paragraph

Changed “bands around the oculus, four circles, four squares, and **lotus-blossom roundels**” to “**lotus-blossom roundels** and bands around the oculus, four circles, four squares, and **arched walls**” in the fourth sentence.

Changes in Version 2013.08.12

Chapter 2, *Taxation*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “live” to “live **well**” in the sixth sentence.

Changed “test” to “test **well**” in the last sentence.

Chapter 3, Contemplating the Way Forward, third paragraph

Changed “**can** use **what we believe is the best**” to “may use **any**” in the fourth sentence.

Chapter 3, Contemplating the Way Forward, last paragraph

Changed “ **can** use **what we believe is the best**” to “may use **any**” in the fourth sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, first paragraph

Changed “**as mathematicians define this process**” to “ ” in the first and last sentences (2 occurrences).

Chapter 3, *Overcoming Constraints in Deciding Well*, first paragraph, footnote

Added the following sentence at the beginning of the footnote:

“**More accurately, we can draw some conclusions about overcoming constraints in pursuing Wisdom from the much simpler case of overcoming constraints in computing the value of π as modern mathematicians define this process.**”

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph

Changed “**public approach**” to “**boundless approach**” in the last sentence.

Chapter 3, *Three Approaches to Policy*, last paragraph

Changed “**public approach**” to “**boundless approach**” in the first sentence.

Chapter 3, *Public Order*, second paragraph

Changed “**a modern biological approach**” to “**the modern biological approach**” in the first sentence.

Chapter 3, *Public Order*, last paragraph

Changed “**a public approach**” to “**the boundless approach**” in the first sentence.

Chapter 3, *The Elephant in the Room*, last paragraph, end

Added the footnote:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹³ Modern thinkers may prefer an infinitely large crane to an infinitely large elephant. In this metaphor, the higher we climb, the more we learn about what compels us to climb.”

Chapter 4, *Refining Finding Problems to Solve*, first paragraph

Changed “corporate research program” to “research program” in the third sentence.

Changed “public research program” to “research program” in the last sentence.

Chapter 5, *A Sovereign Story for Deciding Well*, last paragraph, footnote, first sentence

“A sovereign story for deciding well should lead to a culture that embraces thriving in winds and surviving in gales of creative destruction.”

was changed to:

“A civilization dedicated to deciding well calls for people who are able to thrive in winds and survive in gales of creative destruction.”

Chapter 5, *Promote Boundless, not Current Order*, last paragraph

Changed “destroying” to “unraveling” in the second sentence.

Chapter 5, *Promote Boundless, not Current Order*, last paragraph

“A civilization dedicated to deciding well calls for people who are able to thrive in winds and survive in gales of creative destruction.”

was deleted.

Changes in Version 2013.08.14

Preface, third paragraph

Changed “temporally-bounded” to “temporally bounded” in the block quote.

Chapter 1, *The Boundless Model*, title

Changed the title to “The Practically Boundless Model.”

Chapter 1, *The Practically Boundless Model*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“If we believe that thinking reasonably is the same as thinking logically, then all frames are bounded. When we reduce our sensations of the world to a logical model, we always leave something out of our model. There are no boundless frames. On the other hand, if we believe that thinking reasonably is more than thinking logically, we may combine timeless frames to form a reasonable model of deciding well that when applied to itself an infinite number of times leaves nothing out. As aspects of this boundless model, these frames are boundless.”

was changed to:

“In theory, we can solve the problem of bounds blinding us to finding better problems to solve by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.

“When used recursively an infinite number of times, a self-refining model for deciding well yields a perfectly refined model for deciding well. As a practical matter, a perfectly refined model for deciding well is boundless with respect to deciding well. For deciding well, we may think of its timeless end as a boundless end.¹⁰

“If as part of its refining process a self-refining model for deciding well breaks down the pursuit of the timeless end of deciding well into the pursuits of aspects of this timeless end, then the pursuits of these aspects would also be boundless with respect to deciding well. For deciding well, we may think of these timeless ends as boundless ends.”

¹⁰ Consider the bubble canopy of the F-16 fighter plane. Although it has a frame, for the practical purpose of fighting well, it is frameless. This is true regardless of any other visual impediments it may have, e.g., distortions caused by manufacturing mistakes.”

Chapter 1, The Boundless Model, last paragraph

Changed “frames” to “ends” and “tedium and confusion” to “confusion” in the first sentence.

Changed “linking (or re-linking)” to “linking” in the third sentence.

Changes in Version 2013.08.15

Acknowledgments, fourth paragraph

Changed “business forms printer” to “business forms company” in the first sentence.

Changed “learning itself” to “learning well” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Acknowledgments, fifth paragraph

Changed “**printing** business” to “**forms** business” in the first sentence.

Chapter 1, introduction, last paragraph

Changed “**section**” to “**chapter**” in the last sentence.

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Changed “boundless **frames**” to “**practically** boundless **ends**” in the last sentence.

Chapter 1, The Practically Boundless Model, second paragraph, footnote

Changed “**caused by** manufacturing **mistakes**” to “**due to current ignorance in material science and** manufacturing **engineering**” in the last sentence.

Chapter 1, *The Truth and Wisdom*, last paragraph

Changed “**the boundless end of believing well (the Truth)**” to “the Truth” in the fifth sentence.

Changed “**the boundless end of deciding well (Wisdom)**” to “Wisdom” in the sixth sentence of the footnote.

Chapter 3, *Three Approaches to Policy*, last paragraph

Changed “**the boundless end of deciding well (Wisdom)**” to “Wisdom” in the last sentence.

Appendix A, entire appendix

Changed “**patterns**” to “**forms**” in all (28 occurrences).

Appendix C, The Forgotten Role of Octagons, second paragraph

Changed “**The**” to “**This**” in the fourth sentence.

Appendix C, *On the Philosophy Wall*, first paragraph

Changed “form” to “form (**pattern**)” in the third sentence.

Appendix C, *On the Jurisprudence Wall*, first paragraph

Changed “**the boundless end of** jurisprudence (**Justice**)” to “jurisprudence” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, *On the Poetry Wall*, first paragraph

Changed “the boundless end of poetry (Beauty)” to “poetry (the arts)” in the first sentence.

Appendix C, *Black Clouds in Theology*, second paragraph, third sentence

Inserted the sentence:

“The putto nearest the poetry circle appears to have lost its footing.”

Appendix C, *A Boundless View of the Whole*, first paragraph

Changed “that the floor consists of a mishmash” to “the mishmash” in the fourth sentence.

Appendix C, *The Role of Julius II*, last paragraph

Changed “generate” to “form” in all (3 occurrences).

Changes in Version 2013.08.21

Chapter 1, introduction, fourth paragraph

Changed “is to learn” to “includes learning” in the last sentence.

Chapter 1, *Choosing Frames Well*, first paragraph, footnote

Changed “beings who plan and learn from their actions” to “people” in the second sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph, footnote, last sentence

“This ignorance includes not knowing whether time is truly absolute, relativistic, or something else.”

was deleted.

Chapter 3, *Zero Public Entropy*, first paragraph

Changed “uncertainty” to “inefficiency” in the first sentence.

Chapter 3, *Zero Public Entropy*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**what we currently call the sciences**” to “**physics**” in the second sentence.

Chapter 2, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, last paragraph, first footnote, end

Added the following sentences:

“**Note that we may cooperate with others not only by communicating with each other, but also by following the same strategy. In deciding well, the concept of absolute time is not without use.**”

Chapter 5, introduction, last paragraph, footnote

Changed “**Roman Emperor**” to “**Emperor,**” “**pirate Henry**” to “**Captain Henry,**” and “**crew**” to “**pirate crew**” in the second sentence.

Appendix A, introduction, third to last paragraph, footnote, last sentence

“**If a problem cannot be solved, enlarge it.**”

was changed to:

“**We need to enlarge the problem.**”

Appendix A, The Big Picture, last block quote

Changed “**decide well**” to “**pursue the boundless end of deciding well**” in the last sentence of the second paragraph.

Merged the two paragraphs.

Appendix C, A Boundless View of the Whole, first paragraph, end

Added the footnote:

“**This is not to say that the forms contained within these rectilinear borders are completely rational. These forms represent models of the world. All models of the world include claims that we cannot prove formally.**”

Appendix C, *The Role of Julius II*, last two paragraphs

“We can see a reason for this in the decorative bands of the imaginary load-bearing structure of the ceiling. As we enhance our talent for recognizing forms, we develop the ability to form **imaginative forms** in our mind’s eye. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we form geometric **forms**, such as those we see in the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

rectilinear bottom band. In the second, we form natural **forms**, such as those in the middle floral band. In the third, we form **forms based on** images from our unconscious **mind**, such as those in the golden bands filled with grotesque images that form most of the imaginary structure.

“A great danger in **pursuing this aspect of enlightenment** is confusing forms that ring true with what we currently believe with forms that are truly useful in deciding well. **We ought to judge forms by how well they ring true with everything we currently know about deciding well. We then ought to test those that ring true against experience.**”

were changed to:

“We can see a reason for this in the decorative bands of the imaginary load-bearing structure of the ceiling. As we enhance our talent for recognizing forms, we develop the ability to form **repetitive images** in our mind’s eye. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we form geometric **images**, such as those we see in the rectilinear bottom band. In the second, we form natural **images**, such as those in the middle floral band. In the third, we form images from our unconscious, such as those in the golden bands filled with grotesque images that form most of the imaginary **ceiling** structure. A great danger in **developing this talent/genius** is confusing forms that ring true with what we currently believe with forms that are truly useful in deciding well.”

Changes in Version 2013.08.24

Acknowledgments, second paragraph

Changed “**economic** methodology” to “**the methodology of modern economics**” in the sixth sentence.

Chapter 1, Choosing Frames Well, first paragraph, last three sentences

“Over time, we refine **these structures** by removing waste from them. **Sources of waste include terms that refer to more than one concept and pairs of concepts defined in terms of each other.** We may call structures **useful in reducing our sensations to concepts from which we have removed all waste that it is currently economic for us to remove** *frames*.”

were changed to:

“We may call these conceptual structures *frames*.”

Chapter 1, *The EOQ/RTS Example*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We can see **the difference between temporal and timeless frames** in two models for helping us to decide how often to set up machine tools. The first is the temporal *economic order quantity* (EOQ) model. The second is the timeless *rapid tool setting* (RTS) model.”

were changed to:

“We refine frames by removing waste from them. Sources of waste include terms that refer to more than one concept and pairs of concepts defined in terms of each other. We may call structures useful in reducing our sensations to concepts from which we have removed all waste that it is currently economic for us to remove *models*.”

“In keeping with our distinction between temporal and timeless frames, we may **distinguish between temporal and timeless models**. We can see **this distinction** in two models for helping us to decide how often to set up machine tools. The first is the temporal *economic order quantity* (EOQ) model. The second is the timeless *rapid tool setting* (RTS) model.”

Chapter 1, *Seeing Through Apparent Miracles*, first paragraph

Changed “**fewer** material resources” to “**less** material resources” in the last sentence of the third bullet point.

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Changed “**ends**” to “**frames**” in the last sentence.

Chapter 1, *The Practically Boundless Model*, third paragraph

“When **used recursively** an infinite number of times, a self-refining model for deciding well yields a perfectly refined model for deciding well. **As a practical matter, a perfectly refined model of deciding well is boundless with respect to deciding well.**¹⁰For deciding well, we may think of its timeless end as a boundless end.”

was changed to:

“When **applied sequentially** an infinite number of times, a self-refining model for deciding well yields a perfectly refined model for deciding well. For deciding well, we may think of its timeless end as a boundless end.”

Moved the footnote to the end of the preceding subsection.

Chapter 1, *The Truth and Wisdom*, sixth paragraph

Changed “**deciding** well” to “**believing** well” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *The Truth and Wisdom*, last paragraph, first three sentences

“The process of deciding well calls for refining the process of deciding well. To refine this process well, we need a means of breaking it down into wieldier problems. One way involves breaking down the process of deciding well into the processes of pursuing universally useful knowledge resources that we can never have in excess.”

were changed to:

“We can use the insight that pursuing the Truth and pursuing Wisdom form a virtuous circle to build self-refining models for deciding well. To refine the process of deciding well, we need a means of breaking it down into wieldier parts. We can do so by breaking it into the pursuits of universally useful knowledge resources that we can never have in excess.”

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph

Changed “the model” to “the model for deciding well” in the last sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, second paragraph

Changed “three steps” to “four steps” in the first sentence.

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, last paragraph, third sentence

Added the footnote:

¹² This presumes that there exist no extraterrestrial forms of life who are willing to converse with us. Given what the boundless view of deciding well tells us about modern reason, extraterrestrial intelligent life capable of communicating with us would likely find conversing with us to be no more useful than we would find conversing with bonobos. At this stage in our evolution, we ought to concern ourselves with being worthy of joining a cosmic conversation, not with the means of joining it.”

Chapter 4, *Refining Problems to Solve*, second paragraph, footnote, last sentence

“Part of this is taking responsibility for our epigenetic programming, which can affect not only our own potential but also that of our descendants.”

was deleted. (The last footnote in chapter 7 discusses epigenetic programming.)

Chapter 4, *Modern Policy Mistakes*, fourth paragraph, first footnote

Changed “fewer resources” to “less resources” in all (2 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, introduction, third paragraph, footnote

Changed “**fewer** scarce resources” to “**less** scarce resources” in the last sentence.

Chapter 8, Eudaemonia, last paragraph, last footnote

Identified ‘eudaemonia’ as a term (2 occurrences).

Appendix A, The Big Picture, last paragraph, end

Added the paragraph:

“**Now imagine that instead of three objects in the first row, the problem on the billboard had only the first two objects. How many solutions would we provide? What does this say about us? Are we simple minded, muddle headed, or reasonable?**”

Appendix B, introduction, first paragraph

Changed “**fewer** non-knowledge resources” to “**less** non-knowledge resources” in the first sentence.

Appendix C, On the Philosophy Wall, third paragraph, footnote

Changed “**poetry, theology, and jurisprudence frescoes**” to “theology **wall**” in the last sentence.

Appendix C, *The Role of Julius II*, last paragraph

“We can see a reason for this in the decorative bands of the imaginary load-bearing structure of the ceiling. As we enhance our talent for recognizing forms, we develop the ability to form repetitive images in our mind’s eye. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we form geometric images, such as those we see in the rectilinear bottom band. In the second, we form natural images, such as those in the middle floral band. In the third, we form images from our unconscious, such as those in the golden bands filled with grotesque images that form most of the imaginary ceiling structure. A great danger in developing this talent/genius is confusing forms that ring true with what we currently believe with forms that are truly useful in deciding well.”

was reduced to a footnote and changed to:

“We can see a reason for this in the decorative bands of the imaginary load-bearing structure of the ceiling. As we enhance our talent for recognizing forms, we develop the ability to form repetitive images in our mind’s eye. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we form geometric images, such as those we see in the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

rectilinear bottom band. In the second, we form natural images, such as those in the middle floral band. In the third, we form images from our unconscious, such as those in the golden bands filled with grotesque images that form most of the imaginary ceiling structure. A great danger in developing this talent/genius is confusing forms that ring true with what we currently believe with forms that are truly useful in deciding well. **The authors would have Julius II judge rather than create and judge ecclesiastical forms.”**

Changes in Version 2013.08.27

Chapter 1, *The Truth and Wisdom*, seventh paragraph

Changed “**ever better**” to “**well**” in all (4 occurrences).

Chapter 1, *The Truth and Wisdom*, fifth paragraph, footnote

Changed “**bounded**” to “**temporal**” in the last sentence.

Chapter 2, entire chapter

Changed “**bounded**” to “**modern**” in the first sentence of the chapter.

Changed “**bounded**” to “**temporal**” in all (14 occurrences).

Changed “*effective*” to “*effective in deciding well*” in the last sentence of the second paragraph of the chapter.

Chapter 4, *Academic Fields*, first paragraph, last two sentences

Changed “**bounded**” to “**temporal**” in the third sentence.

Changed “**In the case of believing well**” to “**Similarly**” in the last sentence.

Chapter 4, *Refining Finding Problems to Solve*, third paragraph

Changed “**bounded**” to “**temporal**” in the second sentence.

Appendix A, *The Big Picture*, entire section

Revised initial table, reversed function labels, and added subscripts to function labels.

Appendix C, *On the Poetry Wall*, last paragraph

Changed “a **multiple-frame** strategy” to “an **esoteric** strategy” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, *On the Philosophy Wall*, third paragraph

Changed “reason as rationality” to “reason of geometry, mathematics, and logic” in the first sentence.

Changes in Version 2013.08.29

Preface, eleventh paragraph

Changed “in *natural science*, in” to “in” in the first sentence.

Chapter 1, The Practically Boundless Model, second paragraph

“In theory, we can solve the problem of bounds blinding us to finding better problems to solve by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.”

was changed to:

“In theory, we can solve the problem of bounds by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.”

Chapter 2, Wealth, first paragraph, end

Added the footnote:

“In thinking about what we need to live well, we need to consider the self-fulfilling aspect of the stories we use to explain our needs. If our story is that we are naked apes, we evolve as if we are naked apes. In contrast, if our story is that we are ignorant people seeking to act wisely, we will evolve as if we are ignorant people seeking to act wisely. From a modern view of science, the relevant question is which story best predicts how we will act. From the boundless view, it is which story best helps us decide well. *In explaining the world, we seek to know the world not as we find it, but rather as we may form it.*”

Chapter 4, Testing Natural Science, title

Changed title to “Testing Boundless Pragmatism.”

Chapter 7, The Scope of Biological Evolution, first paragraph, first two sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the view of modern biology, living beings **cooperate in order to compete well for resources useful in living well. Those living beings** who always seek to cooperate before they seek to compete are anomalies.”

were changed to:

“ From the view of modern biology, living beings who always seek to cooperate before they seek to compete are anomalies.”

Chapter 7, The Scope of Biological Evolution, first paragraph, first two sentences

“From the boundless view, living beings **not only cooperate in order to compete well for resources useful in living well, but also compete in order to cooperate in living well. Those living beings** that seek to compete before they seek to cooperate are the special case of beings that have not yet developed the wisdom to do otherwise.”

were changed to:

“From the boundless view, living beings that seek to compete before they seek to cooperate are the special case of beings that have not yet developed the wisdom to do otherwise.”

Changes in Version 2013.08.31

Preface, third paragraph, second sentence after block quote

“These constraints concern all three steps in this decision cycle: (1) overcoming constraints in finding problems to solve helps us become ever more *effective*; (2) overcoming constraints in solving given problems helps us become ever more *efficient*; and (3) overcoming constraints in learning from experience helps us become ever *wiser* (ever more effective and efficient).”

was changed to:

“These constraints concern all three steps in this decision cycle: (1) overcoming constraints in finding problems to solve helps us become ever more **effective in deciding well**; (2) overcoming constraints in solving given problems helps us become ever more **efficient in solving given problems**; and (3) overcoming constraints in learning from experience helps us become ever wiser, ever more effective and efficient.”

Preface, eighth paragraph, block quote

Changed “**A**” to “**x**” in all (4 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**B**” to “**y**” in all (4 occurrences).

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Removed italics from the fourth sentence:

“In contrast, from the timeless view of deciding well put forth in this work, **we can know what we need to address unexpected problems infinitely far into the future.**”

Chapter 1, *The Practically Boundless Model*, second paragraph

“**In theory, we can solve the problem of bounds blinding us to finding better problems to solve by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.**”

was changed to:

“In theory, we can solve the problem of bounds by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.”

Chapter 1, *The Practically Boundless Model*, second paragraph

“**In theory, we can solve the problem of bounds blinding us to finding better problems to solve by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.**”

was changed to:

“In theory, we can solve the problem of bounds by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.”

Chapter 1, *The Truth and Wisdom*, fourth paragraph

Removed italics from the last sentence:

“**The problem with inductive reasoning concerns not only our beliefs but also the concepts underlying our beliefs.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, The Elephant in the Room, last paragraph, footnote

Changed “Modern **thinkers** may prefer an infinitely large crane” to “**Some modern readers** may prefer an infinitely large **construction** crane” in the first sentence.

Chapter 4, *Self-Similarity*, first paragraph

Removed italics from the last sentence:

“**The distinction between efficiency and effectiveness depends on the scale of the problem we choose.**”

Chapter 5, Good Policies, first paragraph, footnote

Changed “fractal” to “**non-Euclidean and** fractal” in the second sentence.

Appendix C, Black Clouds in Theology, last paragraph

Changed “**are** appear” to “appear” in the fourth sentence.

Changes in Version 2013.09.02

Chapter 8, Eudaemonia, last paragraph

Changed “reason as **the endless process of**” to “**reasoning well** as” in the second sentence.

Appendix C, *On the Philosophy Wall*, first paragraph

“The next most important octagon is that on which Plato and Aristotle stand **in** the wall **fresco** dedicated to philosophy:

[Image of Plato and Aristotle]

“In pointing up, Plato tells us to pursue Wisdom by pursuing Beauty, Wholeness, Justice, and the Truth. In holding his hand parallel to the ground, Aristotle tells us to know the world around us. **In following the advice of both Plato and Aristotle, we aspire to a more refined form of the two-part reasoning on which Plato and Aristotle stand, as represented by the square-within-an-octagon-within-a-square form (pattern) on the floor beneath their feet:**

[Image of square-within-an-octagon-within-a-square]”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The next most important octagon is that on which Plato and Aristotle stand on the wall dedicated to philosophy:

[Image of Plato and Aristotle]

“In pointing up, Plato tells us to pursue Wisdom by pursuing Beauty, Wholeness, Justice, and the Truth. In holding his hand parallel to the ground, Aristotle tells us to know the world around us. **The octagon is part of a symbol of the two-part reason of Plato and Aristotle, which involves finding and solving temporal problems:**

[Image of square-within-an-octagon-within-a-square]

“**In moving forward, we repeat the sequence of finding and solving temporal problems. In doing so, we refine our reason.**”

Appendix C, *On the Philosophy Wall*, second paragraph (except last image)

“**A symbol of this aspiration would combine elements of the symbol of the reasoning on which Plato and Aristotle stand with those of the symbol of pursuing Wisdom and worldly knowledge in the center of the ceiling. In his description of refining reason at the end of Book IX of *The Republic*, Plato provided us with a means of combining these elements into such a symbol. His** Socrates describes the human psyche as consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. And so on to infinity. Our hydra parts are ruled by desire, our lion parts by spirit, and our human parts by reason. We refine reason by having our human parts train our lion parts to control our hydra parts. A visual means of expressing this self-similarity lies beneath our feet in a crude version of a self-similar **tile form** known to Roman artisans since the late eleventh century:”

[Image of Sierpinski triangle]

“Using this **form** as a model, we can imagine a self-similar **form** that combines the simplicity of the square-within-an-octagon-within-a-square **form** with the dynamism of the image above the oculus:”

was changed to:

“**We can reduce the repetitive use of this symbol of the two-part reason of Plato and Aristotle to a single symbol using Plato’s self-similar metaphor of refining reason. Near the end of Book IX of *The Republic*, his** Socrates describes the human psyche as consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. And so on to infinity. Our hydra parts are ruled by desire, our lion parts by spirit, and our human parts by reason. We refine reason by having our human parts train our lion parts to control our hydra parts. A visual means of expressing this

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

self-similarity lies beneath our feet in a crude version of a self-similar **image** known to Roman artisans since the late eleventh century:³

[Image of Sierpinski triangle]

“Using this **image** as a model, we can imagine a self-similar **image** that combines the simplicity of the square-within-an-octagon-within-a-square **image** with the dynamism of the image above the oculus:”

Appendix C, *On the Philosophy Wall*, third paragraph, first sentence

“Reinforcing this **form** as a symbol of refining the reason of Plato and Aristotle is the figure of Heraclitus, which visually connects the square-within-a-square-within-a-square **floor form** (reason of geometry, mathematics, and logic) to the square-within-an-octagon-within-a-square **floor form** (reason of Plato and Aristotle):”

were changed to:

“Reinforcing this **image** as a symbol of refining the reason of Plato and Aristotle is the figure of Heraclitus, which visually connects the square-within-a-square-within-a-square **symbol of endless rationality** (the reason of geometry, mathematics, and logic) to the square-within-an-octagon-within-a-square **symbol of the** reason of Plato and Aristotle:”

Appendix C, *On the Philosophy Wall*, third paragraph

Changed “**in the fresco**” to “**on this wall**” in the third sentence.

Changed “**endlessly self-similar image**” to “**symbol of reason**” in the third sentence.

Changed “**fresco**” to “**wall**” in the first sentence of the footnote.

Appendix C, *On the Theology Wall*, first paragraph

Changed “wall **fresco**” to “wall” in the first sentence.

Appendix C, *On the Poetry Wall*, first paragraph

Changed “**in the fresco**” to “**on the wall**” in the first sentence.

Changed “**fresco**” to “**wall**” in the second sentence.

Appendix C, *Black Clouds in Theology*, second paragraph, footnote, third sentence

“**The Inquisition banned this letter in all Catholic countries.**”

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, Black Clouds in Theology, last paragraph

Changed “In the theology fresco” to “On the theology wall” in the first sentence.

Changed “fresco” to “wall” in the second sentence.

Changed “historical figures in the philosophy fresco” to “figures on the philosophy wall” in the fourth sentence.

Appendix C, A Boundless View of the Whole, third paragraph

Changed “fresco” to “wall” in the first sentence.

Changed “fresco” to “wall” in the second sentence.

Changes in Version 2013.09.11

Preface, fourth paragraph

“In taking this boundless approach to deciding well, we use bounded models of the world to help us evaluate solutions to given problems. In bounding our models of the world, we exclude what happens outside the bounds of our models from our models. In effect, we presume to know more than we can ever possibly know in order to build logically consistent models of the world that help us predict well within given domains.”

was deleted.

Preface, new fourth paragraph, first two sentences

“In taking this boundless approach, we also use a boundless model of the world of the world to help us find problems to solve. The most basic problem we face is the problem of whether the problem we believe is best is truly best.”

were changed to:

“The most basic problem we face in finding temporally-bound problems to solve is the problem of knowing whether the problem we believe is best is truly best.”

Preface, new sixth paragraph

Changed “aspects” to “facets” in the third sentence.

Preface, new seventh paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Underlying this complex approach to deciding well is a concept of reason based on beauty as well as logic. The claim that we ought to replace our current concept of reason calls for extraordinary evidence. But what qualifies as evidence? From the boundless view of believing well, we ought to choose the concept of reason that rings the truest with all that we currently know about believing well ever more wisely. We do so by acting as if it is best.”

was deleted.

Preface, last paragraph

Changed “pursue the boundless end of believing well” to “believe well” in the first sentence.

Chapter 1, *The EOQ/RTS Example*, third paragraph

Changed “most efficient” to “best” in the ninth sentence.

Chapter 1, *The Practically Boundless Model*, third paragraph

Changed “For deciding well, we” to “We” in the last sentence.

Chapter 1, *The Practically Boundless Model*, fourth paragraph

“If as part of its refining process a self-refining model for deciding well breaks down the pursuit of the boundless end of deciding well into the pursuits of aspects of this timeless end, then the pursuits of these aspects would also be boundless with respect to deciding well. For deciding well, we may also think of these timeless ends as boundless ends.”

was merged with the preceding paragraph and changed to:

“If such a model for deciding well refines itself by breaking down the pursuit of the boundless end of deciding well into the pursuits of facets of this boundless end, then the pursuits of these facets would also be boundless. We may also think of these facets as boundless ends.”

Chapter 1, *The Truth and Wisdom*, last paragraph

Changed “a multiple-frame¹⁴ model” to “multiple-frame¹⁴ models” in the sixth sentence.

Added the following sentences to the end of the footnote:

“From the view of the process of deciding well, we find this unity in the relations between the boundless factors of deciding well. From the view of the boundless end of deciding well, we find it in the relations of the facets of the boundless end of deciding

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

well (Wisdom). As we shall see in the third chapter, this distinction corresponds to the distinction between the timeless and transcendental ends of deciding well.”

Chapter 2, introduction, last paragraph

Changed “*efficient*” to “efficient in solving given problems” in the first sentence.

Changed “*effective*” to “effective” in the last sentence.

Changed “the world as it ought to be” to “how we ought to live” in the last sentence in the footnote.

Chapter 2, *Pleasure and Pain*, fourth paragraph, last two sentences

“This is good in that we can learn to find pleasure in activities that are good for us, such as eating healthy foods. It is bad in that we also can find pleasure in things that are bad for us or for others, such as masochistic or sadistic acts.”

were changed to:

“This is good when we find pleasure in activities that are good for us, such as eating healthy foods, but bad when we find pleasure in things that are bad for us or for others, such as masochistic or sadistic acts.”

Chapter 2, *Pleasure and Pain*, sixth paragraph

Changed “basic needs” to “most basic needs” and “higher” to “less basic” in the fourth sentence.

Chapter 3, introduction, first paragraph

“Deciding well using the boundless approach calls for us to contemplate how well the problems we find ring true with all that we currently know about deciding well. If a problem rings true, then we have found a beautiful problem to solve.”

was deleted.

Chapter 3, introduction, new first paragraph

Changed “boundless frame” to “practically boundless frame” and “contemplating well and Beauty” to “the process of contemplating well and the end of contemplating well” in the first sentence.

Chapter 3, *Public Entropy*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**inefficiency in heat engines**, disorder in physical systems, and inefficiency in information processing” to “disorder in physical systems **and** inefficiency in **heat engines and** information processing” in the first sentence.

Chapter 3, *Public Entropy*, third paragraph, footnote

Changed “problem” to “**exoteric/esoteric** problem” in the last sentence.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, fourth paragraph, footnote, last sentence

“**Disproving it would damage the boundlessly pragmatic argument for free will, which depends on the claim that the existence of free will** rings true with all that we currently know about **pursuing the boundless end of** deciding well.”

was changed to:

“**Note that we can neither prove nor disprove that we have** free will. **However, if claim that it exists** rings true with all that we currently know about deciding well, **we ought to put our faith in its existence.**”

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, sixth paragraph, first sentence

“From the boundless view, there is a fourth class, **within which** the world consists of a past, a present, and a practically infinite number of possible futures.”

was changed to:

“From the boundless view, there is a fourth class. **A defining feature of this class is the belief that** the world consists of a past, a present, and a practically infinite number of possible futures.”

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, sixth paragraph, last two sentences

“**In this class**, we relate the strange behaviors of objects on the quantum level to everything we believe we know about deciding well. As we shall see in the next chapter, this rings true with Einstein’s call for physicists to think critically about not only physics, but also everyday thinking.”

were moved to the end of the section as a new paragraph and changed to:

“**From the boundless view**, we relate the strange behaviors of objects on the quantum level to everything we believe we know about deciding well. As we shall see in the next

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

chapter, this rings true with Einstein's call for physicists to think critically about not only physics, but also everyday thinking."

Chapter 4, introduction, last two paragraphs

"We use descriptions of the world to predict. A prediction is knowledge of what is **apt** to happen. Predictions help us to assign probabilities to uncertain events, which helps us to evaluate alternatives. We refine the descriptions that we use to predict by how well they help us predict. **Members of the set of refined descriptions that help us predict help us become more efficient.**"

"We also use descriptions of the world to explain the world. An explanation is knowledge of why things happen as they do. Explanations help us to understand how our actions may change the world, which helps us to formulate alternatives. We refine the descriptions that we use to explain by how well they help us find problems to solve. **Members of the set of refined descriptions that help us explain help us become more effective.**"

were changed to:

"We use descriptions of the world to predict. A prediction is knowledge of what is **likely** to happen. Predictions help us to assign probabilities to uncertain events, which helps us to evaluate alternatives. We refine the descriptions that we use to predict by how well they help us predict.

"We also use descriptions of the world to explain the world. An explanation is knowledge of why things happen as they do. Explanations help us to understand how our actions may change the world, which helps us to formulate alternatives. We refine the descriptions that we use to explain by how well they help us find problems to solve."

Chapter 4, *Self-Similarity*, first paragraph

Changed "**Again, we**" to "**We**" in the first sentence.

Chapter 4, *Self-Similarity*, second paragraph

"On any given level of abstraction, we can describe the relations between events, but not the causes of events. To explain the causes of events, we need to view the world from a lower level of abstraction. On the lowest level of abstraction, there exist no lower levels of abstraction from which to explain. From the view of people who believe that quantum mechanics is the lowest level of abstraction, searching for models that explain the behavior of objects on the level of quantum mechanics is foolish. In contrast, from the boundless view, we ought to search lower levels for models that explain causation on the level of quantum mechanics *wisely*. More than one explanation may fit what we can sense.³ We ought to choose the explanation that best helps us decide well."

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“**In philosophical terms, (theory-laden) facts underdetermine theories that we use to explain causation.**”

was reduced to a footnote to the first paragraph and changed to:

“² On any given level of abstraction, we can describe the relations between events, but not the causes of events. To explain the causes of events, we need to view the world from a lower level of abstraction. On the lowest level of abstraction, there exist no lower levels of abstraction from which to explain. From the view of people who believe that quantum mechanics is the lowest level of abstraction, searching for models that explain the behavior of objects on the level of quantum mechanics is foolish. In contrast, from the boundless view, we ought to search lower levels for models that explain causation on the level of quantum mechanics *wisely*. More than one explanation may fit what we can sense. **In philosophical terms, (theory-laden) facts underdetermine theories that we use to explain causation.** We ought to choose the explanation that best helps us decide well.”

Chapter 4, *Self-Similarity*, last paragraph

Changed “*in our markets*” to “*, into our markets*” in the last sentence.

Chapter 5, *The Explicit Experiment*, second paragraph, footnote, last sentence

“Franklin’s famous reply to the woman who asked him what the secret meetings that we now call the Constitutional Convention produced (“A republic, if you can keep it”) **rings true with the belief that Franklin made this crucial change.**”

was changed to:

“**This rings true with** Franklin’s famous reply to the woman who asked him what the secret meetings that we now call the Constitutional Convention produced: “A republic, if you can keep it.””

Chapter 7, *OODA Loop Analysis*, last paragraph

Changed “Operation Desert Storm” to “Operation Desert Storm, **the 1991 campaign to remove Iraqi troops from Kuwait**” in the first sentence.

Chapter 8, introduction, first paragraph

“**Pursuing ends well calls for us to overcome our ignorance of the world. This ignorance takes the form of poor predictions and explanations of causation. Poor predictions hinder us from solving given problems well. Poor explanations hinder us from finding problems to solve well.**”

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, introduction, new second paragraph, fourth sentence

“Excellence in solving given bounded problems calls for logically consistent models.”

was deleted.

Chapter 8, introduction, new third paragraph, third and fourth sentences

“Excellence in finding problems calls for defining our chosen timeless end and the means of pursuing it in terms of each other. If these two objects were not ambiguous, there would be no room for better approximates of them.”

were deleted.

Chapter 8, introduction, new fourth paragraph, third sentence

“Excellence in finding problems to solve calls for multiple-frame models that are ambiguous with respect to the boundless ends of all boundless factors of deciding well and the means of pursuing these ends.”

was deleted.

Chapter 8, introduction, last paragraph

Changed “believing well ever more wisely” to “deciding well” in the second sentence.

Chapter 8, Complete Reason, first paragraph, second sentence

“We can never prove a set of rules for pursuing the Truth to be both logically consistent and complete.⁴”

⁴ Consider the following claims: (1) for any set of rules for pursuing the Truth, we will either discover or never discover the Truth; (2) if we discover the Truth, we prove that the set of rules is complete; (3) if we never discover the Truth, we never prove that the set of rules is complete; and (4) pursuing the Truth is an endless process. From these four claims, it follows that we can never prove a set of rules for pursuing the Truth to be both logically consistent and complete. If we discover the Truth, we prove false the claim that pursuing the Truth is an endless process. If we never discover the Truth, we never prove that the set of rules is complete.”

was changed to:

“We can never prove a set of rules for pursuing the Truth to be complete.”

Chapter 8, Complete Reason, first paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “approach” to “approach to deciding well” and “*decide* well” to “decide well” in the third sentence.

Chapter 8, Eudaemonia, first paragraph, second and third sentences

“By themselves, these frameworks are useless. We make them useful by adding to them what we currently believe we know about pursuing the boundless factors of deciding well.”

were deleted.

Appendix A, introduction, second paragraph

Changed “third object” to “third object in the bottom row” in the third sentence.

Changed “third object” to “third object in the top row” in the last sentence.

Appendix A, introduction, seventh paragraph

Changed “(bounded) results” to “results” in the fifth sentence.

Changed “This” to “This temporal approach” in the last sentence.

Appendix C, *On the Philosophy Wall*, second paragraph

Changed “image with the dynamism of the image above the oculus” to “form with the dynamism of Plato and Aristotle walking across a series of these forms” in the last sentence.

Appendix C, *On the Poetry Wall*, last paragraph

Changed “as a whole depicts an esoteric strategy for pursuing Holy Wisdom” to “depicts an esoteric strategy for bringing ever more Holy Wisdom into the world” in the last sentence.

Changes in Version 2013.09.18

Acknowledgments, second paragraph, last sentence

“I finally gave Gordon his paper, “Wealth in the Information Age, A Humanistic Approach to Economics,” seventeen years late.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Today, I recognize the source of this failure as dread of thinking deeply about the whole of space-time, which calls for overturning modern explanations of the world.”

Acknowledgments, fifth paragraph

“After selling my interest in the forms business in 1985, I decided to explore an idea I had about how to improve learning in financial analysis. Fortunately, the object-oriented software tools I needed to write an interactive compiler based on this idea were not yet available. While waiting for these tools to become available, and stable, I had much time to revisit the modern economic problem of learning. This took me to the Santa Fe Institute, where I made friends with two seekers of larger truths. Howard Sherman introduced me to Albert Einstein’s theory of knowledge. W. Brian Arthur suggested that I write a book “from the heart.” Writing what evolved into this book became a higher priority than selling the financial analysis language, which has too little of the sweet pretense of certainty for modern tastes.”

was changed to:

“After selling my interest in the forms business in 1985, I decided to explore an idea I had about how to improve learning in financial analysis. The object-oriented software tools I needed to write an interactive compiler based on this idea were not yet available. While waiting for these tools to become available, and stable, I had much time to revisit the modern economic problem of learning. In 1992, I gave Gordon Douglass the term paper I was unable to write seventeen years earlier, “Wealth in the Information Age, A Humanistic Approach to Economics.” This became the basis for a paper that I delivered to the International Schumpeter Society conference in Athens a year later. A little more than a year after that, I joined the Santa Fe Institute Business Network, where I made friends with two seekers of larger truths. Howard Sherman introduced me to Albert Einstein’s theory of knowledge. W. Brian Arthur suggested that I write a book “from the heart.” Writing what evolved into this book became a higher priority than selling the financial analysis language, which has too little of the sweet pretense of certainty for modern tastes.”

Chapter 1, *The Truth and Wisdom*, second paragraph

Changed “provides” to “provided” in the first sentence.

Chapter 1, *The Truth and Wisdom*, fourth paragraph

Changed “provides” to “provided” in the first sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph

Changed “, given our ignorance of not only the current state of the world, but also all possible future states of the world.” to “.” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *Ever More Complete Multiple-Frame Models*, third paragraph

Changed “to work well” to “to **live and** work well” in the first sentence.

Changed “provide” to “**provided**” in the second sentence.

Chapter 3, introduction, second paragraph

Changed “**joining**” to “**linking**” in the first sentence.

Chapter 4, introduction, first paragraph

Changed “**tells**” to “**told**” in the first sentence.

Appendix A, introduction, second paragraph

Changed “three objects” to “**the following** three objects” in the first sentence.

Appendix B, *Inducing the Creation of Knowledge*, third paragraph

Changed “machines” to “**WIP inventory**, machines” in the second sentence.

Appendix C, A Boundless View of the Whole, second paragraph

Changed “, **as opposed to the world as we may form it.**” to “.” in the first sentence.

Changed “, **as opposed to parts of the world as we currently find them.**” to “.” in the second sentence.

Appendix C, *The Role of Julius II*, last paragraph, footnote

Changed “**this**” to “**why the authors would have Julius II judge rather than create and judge ecclesiastical forms**” in the first sentence.

Deleted the last sentence: “**The authors would have Julius II judge rather than create and judge ecclesiastical forms.**”

Changes in Version 2013.09.20

The following edits were recommended by Patrika Vaughn:

Acknowledgments, second paragraph

Changed “.” to “:.” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Acknowledgments, third paragraph

Changed “.” to “:” in the first sentence.

Acknowledgments, last paragraph

Changed “.” to “:” in the first sentence.

Preface, sixth through second to the last sentences

Changed “,” to “” in the first sentence. (Removed commas after chapter name.)

Chapter 1, *The EOQ/RTS Example*, sixth paragraph, third through fifth sentences

“They also reduce scrap. When production team members set up wrongly, they need to scrap fewer parts. Short setup times even enhance learning. It is much easier for team members to remember what they did wrong three hours ago than what they did wrong three weeks ago.”

were changed to:

“They also reduce scrap: when production team members set up wrongly, they scrap smaller batches. Short setup times even enhance learning: it is much easier for team members to remember what they did wrong three hours ago than what they did wrong three weeks ago.”

Chapter 1, *Ever More Complete Multiple-Frame Models*, third paragraph, footnote

Changed “that species” to “what species” in the third sentence.

Chapter 2, *Tools for Pursuing Pleasure and Joy*, third paragraph

Changed “to tools” to “tools” in the first sentence.

Chapter 3, *Public Entropy*, first paragraph, footnote

Changed “and alternative to” to “(and alternative to)” in the last sentence.

Chapter 4, introduction third paragraph, last two sentences

“We refine worldly knowledge by weeding out all worldly knowledge that we cannot express in words or symbols. What remains is the set of all descriptions of the world.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“**In analyzing the world, we refine worldly knowledge by weeding out all worldly knowledge that we cannot express in concepts. What remains is the set of all conceptual descriptions of the world.**”

Chapter 4, introduction, third paragraph

Changed “descriptions” to “**conceptual** descriptions” in the first sentence.

Chapter 4, introduction, last paragraph

Changed “descriptions” to “**conceptual** descriptions” in the first sentence.

Chapter 7, *A Normal Anomaly*, second paragraph

Changed “philosopher **of science**” to “philosopher-**scientist**” in the first sentence.

Changes in Version 2013.09.21

Acknowledgments, second paragraph, footnote, seventh sentence

“**I did not realize that I had stumbled into the economic equivalent of Georg Cantor’s continuum hypothesis.**”

was deleted.

Chapter 1, The Practically Boundless Model, last paragraph

Changed “**the divine**” to “**a divinity or divinities**” in the last sentence.

Chapter 2, introduction, last paragraph, footnote

Changed “**ought**” to “**owe it to ourselves**” in the first half of the last sentence.

Chapter 3, The Elephant in the Room, first paragraph, footnote, first sentence

Inserted the following after the first sentence:

“**Allowing for the possibility of physical laws and constants other than those of our universe would yield even longer odds.**”

Chapter 5, Good Policies, first paragraph, footnote

Changed “geometry” to “**geometries**” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, *Promote Savings for Welfare*, last paragraph

Changed “a safety net program” to “safety net programs” and “material resources” to “resources” in the sixth sentence.

Changed “.” to “to compete against government safety net programs.” in the last sentence.

Appendix A, introduction, third paragraph

Changed “geometry” to “Euclidean geometry” in the second sentence.

Appendix A, introduction, x paragraph

Changed “temporal” to “superficial” in the second sentence.

Appendix A, Indispensable Forms, last paragraph

Changed “*the science of forms*” to “the science of forms” in the first sentence.

Changed “When confronted with more than one solution to an information problem, we choose the solution that appears” to “In pursuing this knowledge, we choose the solutions to problems that appear” in the second sentence.

Changed “it is” to “they are” in the third sentence.

Appendix C, The Forgotten Role of Octagons, first paragraph

Changed “the Divine” to “the divine” in the first sentence.

Appendix C, A Boundless View of the Whole, last paragraph

Changed “and” to “or” in the third (second to last) sentence.

Changed “gesture or gaze upward toward” to “gaze or gesture toward Holy” in the last sentence.

Appendix C, *The Role of Julius II*, first paragraph

Changed “Wisdom” to “Holy Wisdom” in the last sentence.

Changes in Version 2013.09.28

Acknowledgments, second paragraph, end

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Added the paragraph:

“The first two were sons of bankers from Grinnell, Iowa, a “new Jerusalem” shaken by the scandalous collapse of its most trusted bank in 1904: John Huntington Harris pointed out people and habits worth imitating. He also expressed great contempt for people who too readily reduced the world to numbers without considering the usefulness of these numbers, a habit he acquired while rising through the ranks of the Organizational Planning and Statistical Control Divisions of the Army Air Force Management Control Directorate during the Second World War. Wilfred “Mac” McNeil told me parables based on his experiences as special assistant for financial matters to the first secretary of the Department of Defense and comptroller under its next five secretaries. Both knew that the way forward that can be told is not the best way forward. Accordingly, they put more stock in character and culture than most of their contemporaries did.”

Acknowledgments, new third paragraph

Changed “first” to “next” in the first sentence.

Changed “failure” to “problem” and “, which calls for overturning modern explanations of the world” to “.” in the last sentence.

Acknowledgments, new fourth paragraph

Changed “The next four were” to “Following these were four” in the first sentence.

Acknowledgments, new fifth paragraph

Changed “1980s,” to “1980s” in the first sentence.

Changed “act and learn” to “decide (act and learn)” in the third sentence.

Acknowledgments, last paragraph

“The last three were sons of bankers from Grinnell, Iowa, a “new Jerusalem” shaken by the scandalous collapse of its most trusted bank in 1904: Wilfred McNeil told me parables based on his experiences as special assistant for financial matters to the first secretary of the Department of Defense and comptroller under its next five secretaries. George Bach took a Socratic approach. John Harris pointed out people and habits worth imitating. He also expressed great contempt for people who too readily reduced the world to numbers without considering the usefulness of these numbers, a habit he acquired while rising through the ranks of the Organizational Planning and Statistical Control Divisions of the Army Air Force Management Control Directorate during the Second World War. All three knew that the way forward that can be told is not the best way forward. In this work, I describe a strategy for learning how to tell ever more about the best way forward.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“For the last eighteen years I have listened to what many thoughtful people had to say about the best way forward. All of these people framed their arguments on what they believed to be facts about the world. In contrast, logician Kurt Gödel believed that it was possible to base such arguments on a reasonable approach to believing well, which he called an *a priori* approach to science. In this little book, I argue that such an approach is the best way to tell ever more about the best way forward, but only if it is self-referential, self-similar, and superrational.”

Chapter 4, *Self-Similarity*, last paragraph

Changed “*and cultures*” to “*cultures, and characters*” in the last sentence.

Appendix A, introduction, second to last paragraph, footnote

Changed “*degenerate polygons* (apeirogons, digons, and monogons)” to “apeirogons and other *degenerate polygons* (digons and monogons)” in the last sentence.

Appendix A, *The Big Picture*, third paragraph

Added the fifth and sixth terms to the circle sequence in order to match the six-term polygon sequence.

Appendix A, *Indispensable Forms*, first paragraph

Added the footnote:

“⁴ This is a matter of weeding out less beautiful forms that accomplish the same function in deciding well as other forms. For example, in the introductory section of this appendix we weeded out the regular/irregular means of describing objects (R8, I7, R7, I6, R6, I5, R5, I4, R4, I3, R3) because it was less beautiful than the no-transform/yes-transform means (N8, Y8, N7, Y7, N6, Y6, N5, Y5, N4, Y4, N3).”

Appendix C, *On the Jurisprudence Wall*, first paragraph

Changed “wisely” to “*ever more* wisely” in the fifth sentence.

Changes in Version 2013.10.14

Entire document

Removed superfluous commas from “not only... but also” constructions (27 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Acknowledgments, third paragraph

Changed “century, he” to “century Fred” and “pushed” to “gently pushed” in the second sentence.

Acknowledgments, third paragraph, last sentence

“Today, I recognize the source of this problem as dread of thinking deeply about the whole of space-time.”

was deleted.

Acknowledgments, last paragraph

“For the last eighteen years I have listened to what many thoughtful people had to say about the best way forward. All of these people framed their arguments on what they believed to be facts about the world. In contrast, logician Kurt Gödel believed that it was possible to base such arguments on a reasonable approach to believing well, which he called an *a priori* approach to science. In this little book, I argue that such an approach is the best way to tell ever more about the best way forward, but only if it is self-referential, self-similar, and superrational.”

was changed to:

“For the last eighteen years I have listened to what many thoughtful people had to say about the best way forward. All of them based their arguments on claimed facts about the world, on apparently solid bedrock. In contrast, logician Kurt Gödel believed that it was possible to base such arguments on a reasonable approach to believing well, on a floating foundation. In this little book, I argue that such an *“a priori”* approach is the best way to tell ever more about the best way forward, but only if it is self-referential, self-similar, superrational, and boundless.”

Preface, first paragraph

Changed “in order to take” to “and took” in the second sentence.

Preface, third paragraph

Changed “effective and efficient” to “effective in deciding well and ever more efficient in solving given problems” in the second to last sentence.

Preface, seventh paragraph, first sentence

“To address this universal problem well we need to consider the knowledge resources that we require to address it well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“Addressing this universal problem well calls for considering the knowledge resources that we need to address it well.”

Preface, seventh paragraph

Removed commas from the last two sentences.

Chapter 1, *Temporal and Timeless Frames*, last paragraph, first footnote

Changed “problem, speaking of efficiency without specifying a problem scale” to “problem we choose, speaking of efficiency without specifying the problem” in the first sentence.

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Changed “practically boundless frames” to “boundless ends” in the last sentence.

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph, footnote

“¹⁰ Consider the bubble canopy of the F-16 fighter plane. Although it has a frame, for the purpose of fighting well, it is frameless. This is true regardless of any other visual impediments it may have, e.g., distortions due to current ignorance in material science and manufacturing engineering.”

was moved to the third paragraph of the next section and changed to:

“¹⁰ In accordance with the reasonable concept of completeness put forth in the last chapter, we may also call the timeless end of deciding well a *reasonably* boundless end.”

Chapter 1, The Practically Boundless Model, title

Changed title to “The Boundless Model of Deciding Well.”

Chapter 1, The Boundless Model of Deciding Well, third paragraph

Changed “model for deciding well” to “model of deciding well” in all (3 occurrences).

Chapter 1, *The Truth and Wisdom*, last paragraph

Changed “models for deciding well” to “models of deciding well” in the first sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph

Changed “model for deciding well” to “model of deciding well” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Overcoming Constraints in Deciding Well*, second paragraph

Changed “the engineering approach to overcoming constraints” back to “*the engineering approach to overcoming constraints*” in the last sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, third paragraph

Changed “the modern biological approach to overcoming constraints” back to “*the modern biological approach to overcoming constraints*” in the last sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, third paragraph, footnote, last two sentences

“Following this line of thinking, refining the process of computing the value of π (well) is part of the process of computing the value of π (well). Further, the timeless end of computing π (well) is a complex structure of knowledge rather than a simple number.”

were changed to:

“Following this line of thinking, the timeless end of computing π (well) is a complex structure of knowledge rather than a simple number.”

Chapter 3, *Public Entropy*, last paragraph, last sentence

“We can begin using this concept of public entropy to remove waste from our belief systems by more tightly linking quantum mechanics to deciding well.”

was promoted to a paragraph and changed to:

“We can begin using this concept by more tightly linking quantum mechanics to deciding well.”

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, fourth paragraph, footnote, last two sentences

“Note that we can neither prove nor disprove that we have free will. However, if the claim that it exists rings true with all that we currently know about deciding well, we ought to put our faith in its existence.”

were deleted.

Chapter 3, *The Elephant in the Room*, last paragraph, footnote

“¹⁴ Some modern readers may prefer an infinitely large construction crane to an infinitely large elephant. In this metaphor, the higher we climb, the more we learn about what compels us to climb.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Chapter 4, *Refining Finding Problems to Solve*, third paragraph, seventh and eighth sentences

“For example, we can look for trading problems that give rise to the uneven flow of resources. **The uneven flow of resources** wastes time and other resources.”

were changed to:

“For example, we can look for trading problems that give rise to the uneven flow of resources, which wastes time and other resources.”

Chapter 6, *Pursuing Eternal Oneness*, first paragraph

Changed “eternal **mystical** oneness” to “eternal oneness” in all (2 occurrences).

Chapter 6, *Pursuing Eternal Oneness*, last paragraph

“Some means to experiencing mystical oneness conserve scarce resources **by sacrificing safety or health**. Religions that help us live well include beliefs to check these extreme means. One example is the Hindu belief **that we have as many lifetimes as it takes to experience mystical union**. Another is the Catholic belief **that we can attain eternal mystical oneness during an existence after life known as purgatory**. **Worldly religions balance emotional and reasonable means to experiencing mystical oneness during life.**”

was changed to:

“Some means to experiencing mystical oneness **sacrifice safety or health in order to** conserve scarce resources. Religions that help us live well include beliefs to check these extreme means. One example is the Hindu belief in **as many lifetimes as it takes to achieve eternal oneness**. Another is the Catholic belief **in life after death in which to achieve eternal oneness.**”

Chapter 7, *An Extraordinary Anomaly*, last paragraph

“**In playing the boundless game of deciding well, we judge actions by how well they ring true with all that we currently know about deciding well and people by the content of their character as revealed by their actions.**”

was deleted.

Chapter 7, *OODA Loop Analysis*, second paragraph, last sentence

“**This made them appear more unpredictable and threatening to their opponents.**¹⁰”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹⁰ Boyd, J., *Patterns of Conflict*, 2005 Defense in the National Interest revision, slide #5. This slide presentation is available online in the Boyd archive section of Project White Horse, < <http://www.projectwhitehorse.com/boydsarchive.htm>> (2 July 2013).”

was deleted.

Chapter 7, *OODA Loop Analysis*, fourth paragraph, end (of *Patterns of Conflict* block quote)

Added the footnote:

“¹⁰ Boyd, J., *Patterns of Conflict*, 2005 Defense in the National Interest revision. This slide presentation is available online in the Boyd archive section of Project White Horse, < <http://www.projectwhitehorse.com/boydsarchive.htm>> (2 July 2013).”

Chapter 7, *Boyd's Grand Strategy*, first paragraph, first footnote

“¹² Boyd, J., *Patterns of Conflict*, 2005 Defense in the National Interest revision, slide #144. This slide presentation is available online in the Boyd archive section of Project White Horse, < <http://www.projectwhitehorse.com/boydsarchive.htm>> (2 July 2013).”

was changed to:

“¹² Boyd, J., *Patterns of Conflict*, slide #144.”

Chapter 7, *Boyd's Grand Strategy*, last paragraph, last sentence

“From this timeless view, boundless factors of deciding well are nothing more than figments of our imagination.”

was changed to:

“From the boundless view, Boyd’s grand strategy is bounded, hence incomplete.”

Chapter 8, introduction, fourth paragraph

Changed “*Reason*” to “*boundless pragmatism*” in the last sentence.

Chapter 8, introduction, second to last paragraph, footnote

Changed “*Reasonable*” to “*boundlessly pragmatic*” in all (2 occurrences).

Chapter 8, introduction, last paragraph

Changed “*Reasonable*” to “*boundlessly pragmatic*” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Deleted the last sentence: “**We do so by putting our faith in Reason.**”

Chapter 8, Complete Reason, title

Changed title to “**Completeness.**”

Chapter 8, Completeness, first paragraph

Changed “**Reason**” to “**boundless pragmatism**” in the last sentence.

Chapter 8, Eudaemonia, second paragraph

Changed “**fully** aware” to “**directly** aware” in the third sentence.

Changed “aware” to “**directly** aware” in the fourth sentence.

Changed “aware” to “**directly** aware” in the last sentence.

Chapter 8, Eudaemonia, last paragraph

Changed “**The boundless approach to** deciding well” to “**Deciding well**” in the first sentence.

Chapter 8, Eudaemonia, last paragraph, first footnote, first sentence

“Plato also provided us with a bounded view of governing our minds well **in likening governing our minds well to governing ourselves well:**”

was changed to:

“**In likening governing our minds well to governing ourselves well,** Plato also provided us with a bounded view of governing our minds well:”

Chapter 8, Eudaemonia, last paragraph, last footnote

Changed “**Reason**” to “**Wisdom**” in the third sentence.

Appendix A, introduction, third to last paragraph, footnote, all three sentences

“**Under** our first scheme for representing objects, which we based on how objects appeared, this sequence (**R8, I5, R7, I6, R6, I5, R5, I4, R4, I3, R3**) makes little sense. To find a deeper pattern within this pattern, we need to start the sequence with a polygon of more than eight sides. We need to enlarge the problem.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Note that if we used our first scheme for representing objects, which we based on how objects appeared, this sequence would make little sense: R8, I5, R7, I6, R6, I5, R5, I4, R4, I3, R3. To find a deeper pattern within this pattern, we would need to start the sequence with a polygon of more than eight sides. We would need to enlarge the problem.”

Appendix A, introduction, second to last paragraph, footnote, last two sentences

“Note that this analysis ignores apeirogons, and other degenerate polygons (digons and monogons). Including them here would add little to our understanding of the relation between mathematics and science.”

were changed to:

“We may choose to approach the programming problem that this infinity creates either algebraically or geometrically. If we approach this problem algebraically, we must create a new class (to hold infinities as well as integers) and a method for subtracting (or decrementing by one) for this new class. If we approach this problem geometrically, we must expand our internal language to handle circles. In this analysis, we take the geometric approach. Note that this analysis ignores degenerate polygons and non-Euclidean geometries. Including them here would add little to our understanding of the boundlessly pragmatic relation between mathematics and science.”

Appendix A, Indispensable Forms, last paragraph

Changed “most useful” to “most useful to us” in the last sentence.

Appendix B, Smoothing Flows, last two paragraphs

Merged the last two paragraphs.

Appendix B, Machine Tools, first paragraph

Changed “three ends: (1) automation; (2) fool proofing; and (3) rapid tool setting” to “three basic ends: automation, fool proofing, and rapid tool setting” in the last sentence.

Appendix B, Machine Tools, second paragraph

“From the view of modern economics and management science, factories are great machines in which people are interchangeable parts. The goal is *efficient* production. From the boundless view, factories are learning organisms in which people are the most important part, the part that learns. The goal is *wise* (ever more efficient and effective) production. Toyota has a boundless view of automating tasks. Rather than trying to get the most out of each machine tool, it tries to get the most out of each full day’s work. A full day’s work is the effort a team member can put forth over a long period without ill effect.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“From the **temporal** view of modern economics and management science, factories are great machines in which people are interchangeable parts. The goal is *efficient* production. From the boundless view, factories are learning organisms in which people are the most important part, the part that learns. The goal is *wise* (ever more efficient and effective) production. Toyota **production teams take** a boundless view of **automation**. Rather than trying to get the most out of each machine tool, **they try** to get the most out of each full day’s work. A full day’s work is the effort a team member can put forth over a long period without ill effect.”

Appendix B, *Rapid Tool Setting*, title

Deleted title, which effectively merged this subsection with the *Machine Tools* subsection.

Appendix C, The Forgotten Role of Octagons, fourth paragraph

Changed “**the boundless ends of** poetry (**Beauty**) and philosophy (**the Truth**)” to “poetry and philosophy” in the first sentence.

Appendix C, *On the Philosophy Wall*, first paragraph, second through last sentences

“In pointing up, Plato tells us to pursue **Wisdom by pursuing Beauty, Wholeness, Justice, and the Truth**. In holding his hand parallel to the ground, Aristotle tells us to know the world **around us**. The octagon is part of a symbol of the two-part reason of Plato and Aristotle, **which involves finding and solving temporal problems:**”

were changed to:

“In pointing up **while walking forward**, Plato tells us to pursue **the boundless ends of poetry, philosophy, jurisprudence, and theology**. In holding his hand parallel to the ground **while standing flat-footed**, Aristotle tells us to know the world **as it currently is**. The octagon is part of a symbol of the two-part reason of Plato and Aristotle:”

Appendix C, *On the Philosophy Wall*, second paragraph, first sentence

Changed “this symbol **of the two-part reason of Plato and Aristotle**” to “this symbol” in the last sentence.

Appendix C, *On the Philosophy Wall*, second paragraph, last two sentences

“**In moving forward, we repeat the sequence of finding and solving temporal problems. In doing so, we refine our reason.**”

were deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, *On the Theology Wall*, first paragraph, last two sentences

“Pursuing the truth about this element calls for us to pursue the boundless end of deciding well, which **in turn calls for us to pursue the truth about this mysterious element. For Roman Catholics, the boundless end of deciding well** is Holy Wisdom (*Hagia Sophia/Logos*).”

were changed to:

“Pursuing the truth about this element calls for us to pursue the boundless end of deciding well, which **for Roman Catholics is Holy Wisdom** (*Hagia Sophia/Logos*).”

Appendix C, *On the Poetry Wall*, first paragraph

Changed “world” to “**world by pursuing the boundless ends of poetry, philosophy, jurisprudence, and theology**” in the last sentence.

Changes in Version 2013.10.15

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Changed “boundless **frames**” to “boundless **models of deciding well**” in the last sentence.

Chapter 1, *The Boundless Model of Deciding Well*, title

Changed title to “**Boundless Models of Deciding Well**.”

Chapter 4, *Academic Fields*, fourth paragraph

“The true sciences would include all fields that aim directly at the Truth. Unlike the natural sciences, the true sciences would not **imply that the beliefs and actions of people are not a part of nature. For example, we would not** exclude **game theory** from biological evolution.^s”

“^s For more about **game theory** and biological evolution, see the chapter on competing well.”

was changed to:

“The true sciences would include all fields that aim directly at the Truth, **which are all that aim at explaining what holds true for the whole of space-time**. Unlike the natural sciences, the true sciences would not exclude **human cultural evolution** from biological evolution.^s”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“For more about **this**, see the chapter on competing well.”

Appendix C, *The Forgotten Role of Octagons*, third paragraph, last sentence

“**From the boundless view**, this Tantalean image represents the mission of learning ever more about **both the world** and Wisdom.”

was changed to:

“**This** Tantalean image represents the mission of learning ever more about the **mysterious fifth element** and Wisdom.”

Appendix C, *On the Poetry Wall*, first paragraph

Changed “two-part reason” to “**the** two-part reason **of Plato and Aristotle**” in the last sentence.

Appendix C, *Black Clouds in Theology*, last paragraph

Changed “poetry and **philosophy**” to “poetry **not grounded in deciding well (sophistic art)** and **poetry grounded in deciding well (philosophical art)**” in the first sentence.

Changed “**poetry**” to “**sophistic art**” in the third sentence.

Changed “**philosophy**” to “**philosophical art**” in the fifth sentence.

Changes in Version 2013.10.16

Chapter 1, *The EOQ/RTS Example*, sixth paragraph

Changed “wrong” to “**that turned out to be** wrong” in the fourth sentence (2 occurrences).

Chapter 1, *The EOQ/RTS Example*, seventh paragraph, second and third sentences

“**In contrast, American firms were mass-producing trucks.** A Toyota supervisor named Taiichi Ohno knew that his firm would never be able to compete by making trucks in the same way as **American firms** did.”

were changed to:

“A Toyota supervisor named Taiichi Ohno knew that his firm would never be able to compete **against mass-producing American firms** by making trucks the same way **they** did.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *Steps for Building Multiple-Frame Models*, fourth paragraph

Changed “a second boundless factor of deciding well” to “the pursuit of the Truth” and “the boundless factors of deciding well” to “Wisdom and Truth” in the first sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, last paragraph

“As we shall see, it helps us find not only conflicts but also holes in our belief systems.”
was deleted.

Changes in Version 2013.10.18

Acknowledgments, third paragraph

Removed comma from the sixth sentence.

Changed “solve this problem” to “understand this apparent conflict between the truth and wisdom” in the ninth sentence.

Chapter 1, *Boundless Models of Deciding Well*, first paragraph

Changed “playing basketball well does not include swimming well” to “allocating resources well (given a fixed stock of knowledge) does not include learning well” in the last sentence.

Chapter 2, *A Grander Virtuous Circle*, first paragraph

Changed “Good products,” to “Good products, particularly good intellectual tools,” in the fourth sentence.

Chapter 3, introduction, first paragraph

Changed “practically boundless model” to “boundless model” in the first sentence.

Chapter 3, *Contemplating the Way Forward*, second paragraph

Changed “process that halts when there are fewer than six marbles in the bag” to “program” in the sixth sentence.

Changed “process” to “program” and “first three steps” to “process” in the seventh sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Overcoming Constraints in Deciding Well*, first paragraph, footnote, first three sentences

“More accurately, we can draw some conclusions about overcoming constraints in pursuing Wisdom from the much simpler case of overcoming constraints in computing the value of π as modern mathematicians define this process. From the view of modern mathematics, π is *computable*, which is to say that we can program a Turing machine, an abstract computing machine that does nothing more than follow rules, to compute π to any number of decimal places. In contrast, from the boundless view, π is computable in theory, but not in practice.”

were changed to:

“From the view of modern mathematics, π is *computable*, which is to say that we can program a Turing machine, an abstract computing machine that does nothing more than follow rules, to compute π to any number of decimal places. Recursive programs for calculating the value of π halt when they reach a given level of effort or accuracy, not the value of π . From the boundless view, π is computable in theory, but not in practice.”

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph, footnote, fourth through last sentences

“From the multiple-frame view, it takes us from the realm of mathematics to the realm of (self-referential) science. We best address the problem of computing π (well) by pursuing the boundless end of deciding well. Following this line of thinking, the timeless end of computing π (well) is a complex structure of knowledge rather than a simple number.”

were changed to:

“From the boundless view, it takes us from the realm of mathematics to the realm of the science of deciding well. We best address the problem of computing π well by pursuing the boundless end of deciding well. Following this line of thinking, the timeless end of computing π well is a complex structure of knowledge rather than a simple number.”

Chapter 3, *Public Entropy*, fourth paragraph, third and fourth sentences

“At the limit of the former, relations become logical. At the limit of the latter, links become rigid.”

were deleted.

Chapter 3, *Public Entropy*, last paragraph

Merged this paragraph with the preceding paragraph.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix A, introduction, seventh paragraph

Changed “This” to “As we shall see, this” in the last sentence.

Appendix A, introduction, ninth paragraph, footnote, last two sentences

“To find a deeper pattern within this pattern, we would need to start the sequence with a polygon of more than eight sides. We would need to enlarge the problem.”

were deleted.

Appendix A, The Big Picture, answer

Simplified answer by incorporating the second (alignment) function into the notation for a regular convex polygon.

Changes in Version 2013.10.21

Acknowledgments, last paragraph

Changed “All” to “Most” in the second sentence.

Changed “superrational, and boundless” to “and superrational” in the last sentence.

Chapter 1, Boundless Models of Deciding Well, first paragraph

Changed “use bounds to separate” to “separate” in the first sentence.

Chapter 1, *The Truth and Wisdom*, last paragraph, footnote, last three sentences

“From the view of the *process* of deciding well, we find this unity in the relations between the boundless factors of deciding well. From the view of the *boundless end* of deciding well, we find it in the relations of the facets of the boundless end of deciding well (Wisdom). As we shall see in the third chapter, this distinction corresponds to the distinction between the timeless and transcendental ends of deciding well.”

were deleted.

Chapter 4, *Modern Policy Mistakes*, third paragraph, footnote

Changed “gather” to “ought to gather” in the first sentence.

Changed “gather” to “ought to gather” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 6, Einstein's Twin Warnings, first paragraph

Changed "reason" to "[modern] reason" in the fifth sentence of the Einstein quote.

Chapter 8, Completeness, entire section

“Completeness

We may call a set of rules for pursuing the Truth that contains all of the rules we need for pursuing the Truth *complete*. We can never prove a set of rules for pursuing the Truth to be complete. This does not mean that we ought not to pursue the Truth. In theory, we collectively ought to pursue the Truth using the set of all possible rules for pursuing the Truth, which includes all possible rules for refining the set of all possible rules for pursuing the Truth. We may call such a set of rules *reasonably complete*. So conceived, the rules of boundless pragmatism appear to be reasonably complete.⁴”

“⁴ Consider the completeness of W. V. O. Quine's holistic approach to believing well: Our concept of completeness concerns the supply side of the market for tools for helping us believe well. We find conflicts in our belief systems. *The philosophy of science is philosophy enough*. Now consider the completeness of the multiple-frame approach to deciding well: Our concept of completeness concerns the supply and demand sides of the market for tools for helping us decide well. We find holes as well as conflicts in our belief systems, e.g., we see that Quine's philosophy is too narrow (Morton White's problem) and that it lacks a normative element (Jaegwon Kim's problem). *The science of science is philosophy enough if and only if it includes pursuing all boundless factors of deciding well*.”

was deleted.

Chapter 8, Eudaemonia, title and first paragraph

“Eudaemonia

Pursuing the boundless **end of** deciding well involves building superrational frameworks for supporting our current beliefs. Missing from this **structure** is a means of understanding constraints on our ability to receive and process information unconsciously. To decide well, we need to consider these constraints. Both as humans and as people living with humans, we need to consider the human condition.”

were changed to:

“**The** boundless **approach to** deciding well involves building superrational frameworks for supporting our current beliefs. Missing from this **approach as described to this point** is a means of understanding constraints on our ability to receive and process information unconsciously. To decide well, we need to consider these constraints. Both as humans and as people living with humans, we need to consider the human condition.”

Chapter 8, second to last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “minds (psyches/souls)” to “minds” in the first sentence.

Chapter 8, last paragraph, first sentence

“Deciding well calls for us to reason well.”

was deleted.

Appendix A, introduction, second paragraph, last sentence

“From the view of the modern IQ test designers, the third object in the top row appears to be an *anomaly*, an object that conflicts with their current beliefs about the world.”

was deleted.

Appendix A, introduction, fourth paragraph

Changed “an octagon that has a vertex on the rightmost point of its circumscribing circle” to “a “vertex-right-aligned” octagon” in the last sentence.

Appendix A, introduction, sixth paragraph

Changed “appear to us” to “appear” in the first sentence.

Appendix A, introduction, ninth paragraph

Changed “an octagon that has a vertex on the rightmost point of its circumscribing circle” to “a vertex-right-aligned octagon” in the fourth sentence.

Appendix A, Indispensable Forms, last paragraph, last sentence

“We presume that the most useful tools to us in deciding well are the most likely to be indispensable to deciding well.”

was changed to:

“We presume that the most useful tools are the most likely to be indispensable.”

Appendix C, On the Philosophy Wall, last paragraph, footnote

Changed “theology wall” to “other three walls” in the last sentence.

Appendix C, A Boundless View of the Whole, fourth paragraph, first two sentences

Changed “both mindsets at work in the gestures” to “these two mindsets personified in the figures” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**both at work**” to “**them**” in the second sentence.

Changes in Version 2013.10.24

Acknowledgments, last paragraph

Changed “**Most of them**” to “**The best**” in the second sentence.

Added the new last sentence:

“**Such a boundless approach can provide us with a way forward that rings truer with all that we currently know about deciding well.**”

Chapter 1, Boundless Models of Deciding Well, first paragraph

Changed “**can**” to “**tend to**” in the second sentence.

Changed “**(given a fixed stock of knowledge)**” to “**using a fixed stock of knowledge**” in the last sentence.

Chapter 1, Boundless Models of Deciding Well, last paragraph

Changed “**these** boundless ends” to “boundless ends” in the first sentence.

Chapter 2, Trade, last paragraph, last sentence

“These structures include **both** geographical clusters, such as Silicon Valley, and entire sectors, **notably the financial sector.**”

was changed to:

“These structures **currently** include geographical clusters, such as Silicon Valley and **the City of London. In time, they will include** entire sectors.”

Chapter 4, *Academic Fields*, fourth paragraph

Changed “**aim at explaining**” to “**seek to explain**” in the first sentence.

Chapter 4, *Academic Fields*, fifth paragraph

Changed “**Truth**” to “**truth**” in the last sentence.

Chapter 6, *Pursuing Eternal Oneness*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “a life” to “**purgatory**, a life” in the last sentence.

Chapter 7, The Scope of Game Theory, first paragraph, ninth and tenth sentences

“He told them that **defectors would always receive at least as much money as everyone else (hence would never be a “loser”), but that** they should aim at getting as much money as possible rather than being a “winner.” **He also told them that the ideal situation for any one player would be to be the single defector, in which case he or she would make \$95 (19 x \$5) and each of the others would make \$54 (18 x \$3 + 1 x \$0).”**

were changed to:

“He **also** told them that they should aim at getting as much money as possible rather than being a “winner.””

Chapter 8, introduction, seventh paragraph

Changed “living” to “**living and working**” in the last sentence.

Changes in Version 2013.10.28

Chapter 1, *The EOQ/RTS Example*, fifth paragraph

Changed “**pricing**” to “**evaluating**” in the fourth sentence.

Chapter 1, *The Truth and Wisdom*, fourth paragraph

Changed “**the Europeans**” to “**Europeans**” in all (4 case-insensitive occurrences).

Chapter 4, *Modern Policy Mistakes*, fourth paragraph, fifth through seventh sentences

“**In** deciding imperfectly, **we** create turbulence in the flow of economic resources. If this were all **we did in** deciding imperfectly, the amount of turbulence would tend toward a “natural” level.⁹ **We** also embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use.”

was changed to:

“**D**eciding imperfectly **creates** turbulence in the flow of economic resources. If this were all deciding imperfectly **did**, the amount of turbulence would tend toward a “natural” level.⁹ **However, it** also embeds mistakes into, or reinforces mistakes in, our networks of knowledge-in-use.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix A, The Big Picture, last paragraph

Italicized the first sentence:

“Now imagine that instead of three objects in the first row, the problem on the billboard had only the first two objects.”

Appendix C, On the Philosophy Wall, first paragraph

Reversed the two images.

“In pointing up while walking forward, Plato tells us to pursue the boundless ends of poetry, philosophy, jurisprudence, and theology. In holding his hand parallel to the ground while standing flat-footed, Aristotle tells us to **know** the world **as it currently is**. **The octagon is part of a symbol of the two-part reason of Plato and Aristotle.**”

was changed to:

“**This octagon is part of a symbol of the two-part reason of Plato and Aristotle.** In pointing up **to the ceiling** while walking forward, Plato tells us to pursue the boundless ends of poetry, philosophy, jurisprudence, and theology. In holding his hand parallel to the ground while standing flat-footed, Aristotle tells us to **rationalize the current state of the world.**”

Appendix C, On the Philosophy Wall, second paragraph

Changed “the repetitive use of this symbol” to “the repetitive use of this symbol **of two-part reason**” in the first sentence.

Appendix C, On the Philosophy Wall, last paragraph

Changed “reason” to “**refining the reason of Plato and Aristotle**” in the fifth sentence.

Appendix C, On the Poetry Wall, last paragraph, end

Added the sentence:

“**As such, it is also a strategy for addressing the problem of calculating the value of π ever more wisely, hence of squaring a circle ever more wisely.**”

Appendix C, A Boundless View of the Whole, last paragraph

Changed “church on earth” to “church on earth **as currently understood by these church doctors**” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2013.10.31

Acknowledgments, last paragraph, last sentence

“Such a boundless approach can provide us with a way forward that rings truer with all that we currently know about deciding well.”

was deleted.

Chapter 1, Boundless Models of Deciding Well, third paragraph, footnote

“¹⁰ In accordance with the reasonable concept of completeness put forth in the last chapter, we may also call the timeless end of deciding well a *reasonably* boundless end.”

was changed to:

“¹⁰ More accurately, we may think of this timeless end as a *reasonably* boundless end.”

Chapter 5, *The Explicit Experiment*, last paragraph

Changed “theistic religion, this affirms a theistic” to “a Creator that we know by more than studying nature, this affirms a divinely revealed” in the fifth sentence.

Changed “the pursuit of social justice” to “social justice” and “pursuit of theistic justice” to “divinely revealed truth about justice” in the last sentence.

Changed “theistical justice” to “divinely revealed truth about justice” in the second sentence of the footnote.

Changed “corruption” to “government corruption” in the third sentence of the footnote.

Chapter 8, Reasoning Well, last paragraph, last sentence

“Pursuing this boundless end helps us use the normally unconscious parts of our minds ever more wisely.”

was changed to:

“So conceived, Eudaimonia is a boundless factor of deciding well.”

“Governing our minds well helps us use the normally unconscious parts of our minds well. In truly progressive cultures, cultures in which good people produce good products and good products produce good people, we share the best means of governing our minds well. Private and public means co-evolve.”

Appendix A, introduction, fifth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**imagining** a scheme” to “**devising** a scheme” in the last sentence.

Appendix C, The Forgotten Role of Octagons, first paragraph

Changed “**Greek** cross” to “cross” in the sixth sentence.

Appendix C, The Forgotten Role of Octagons, last paragraph

Merged the last paragraph with the first paragraph.

Appendix C, The Forgotten Role of Octagons, new last paragraph

Changed “**the** oculus **at the center of the ceiling**” to “**this octagonal** oculus” in the first sentence.

Appendix C, On the Jurisprudence Wall, first paragraph

Changed “Pope Gregory IX sits on a” to “Pope Gregory IX sits on **what appears to be** a” in the third sentence.

Changed “ever more wisely:” to “ever more wisely **at the cost of becoming more self-aware:**” in the last sentence.

Appendix C, On the Poetry Wall, last paragraph, last sentence

“As such, it is also a strategy for addressing the problem of calculating the value of π ever more wisely, hence of squaring a circle ever more wisely.”

was reduced to a footnote.

Appendix C, A Boundless View of the Whole, first paragraph

Changed “ceiling **beyond the oculus**” to “ceiling” in the third sentence.

Appendix C, A Boundless View of the Whole, first paragraph, footnote

“**This is not to say that the forms contained within these rectilinear borders are completely rational. These forms represent models of the world. All models of the world include claims that we cannot prove formally.**”

was deleted.

Appendix C, The Role of Julius II, first paragraph

Changed “square-on-octagon platform” to “**apparent** square-on-octagon platform” in the eighth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**program**” to “**mission**” in the last sentence.

Appendix C, *The Role of Julius II*, last two paragraphs

“Reinforcing the claim that Julius II ought to be an enlightened jurist are two subtle references to Julius II in the ceiling. The more prominent consists in the twelve wedge-shaped images of his family coat of arms, three around each of the four squares. The variety of sizes and shapes of these twelve images suggests that they are not major parts of the ceiling:

[image of Urania corner of the ceiling]

We can easily imagine that the gold lotus-blossom roundels and bands around the oculus, four circles, four squares, and arched walls are the load-bearing parts of the ceiling structure. Adding strength and resilience to this structure are twelve wedge and four hourglass fillers. Holding these “worldly” fillers in place are narrow bands decorated with the heraldic colors of Julius II. The decoration on these bands is an unknotted version of the altar form.

“The less prominent reference is the name Julius in the arch that spans the wall dedicated to jurisprudence. What makes this symbol especially telling is its location to the left and below the center of the arch as we face the wall:

[image of jurisprudence arches]

By putting this symbol below the center of this arch rather than at the center of the oculus, the authors of this room would have Julius II aspire to become an ever better jurist rather than ever more Christlike.⁹”

“We can see a reason for why the authors would have Julius II judge rather than create and judge ecclesiastical forms in the decorative bands of the imaginary load-bearing structure of the ceiling. As we enhance our talent for recognizing forms, we develop the ability to form repetitive images in our mind’s eye. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we form geometric images, such as those we see in the rectilinear bottom band. In the second, we form natural images, such as those in the middle floral band. In the third, we form images from our unconscious, such as those in the golden bands filled with grotesque images that form most of the imaginary ceiling structure. A great danger in developing this talent/genius is confusing forms that ring true with what we currently believe with forms that are truly useful in deciding well.”

were changed to:

“Reinforcing the claim that Julius II ought to be an enlightened jurist is the name Julius in the arch that spans the wall dedicated to jurisprudence.⁹ What makes this symbol

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

especially telling is its location to the left and below the center of the arch as we face the wall:

[image of jurisprudence arches]

By putting this symbol below the center of this arch rather than at the center of the oculus, the authors of this room would have Julius II aspire to become an ever better jurist rather than ever more Christlike.¹⁰

“⁹ Also reinforcing the claim that Julius II ought to be an enlightened jurist are the twelve wedge-shaped images of his family coat of arms, three around each of the four squares. The variety of sizes and shapes of these twelve images suggests that they are not major parts of the ceiling. We can easily imagine that the gold lotus-blossom roundels and bands around the oculus, four circles, four squares, and arched walls are the load-bearing parts of the ceiling structure. Adding strength and resilience to this structure are twelve wedge and four hourglass fillers. Holding these “worldly” fillers in place are narrow bands decorated with the heraldic colors of Julius II. The decoration on these bands is an unknotted version of the altar form.”

“¹⁰ We can see a reason for why the authors would have Julius II judge rather than create and judge ecclesiastical forms in the decorative bands of the imaginary load-bearing structure of the ceiling. As we enhance our talent for recognizing forms, we develop the ability to form repetitive images in our mind’s eye. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we form geometric images, such as those we see in the rectilinear bottom band. In the second, we form natural images, such as those in the middle floral band. In the third, we form images from our unconscious, such as those in the golden bands filled with grotesque images that form most of the imaginary ceiling structure. A great danger in developing this talent/genius is confusing forms that ring true with what we currently believe with forms that are truly useful in deciding well.”

Changes in Version 2013.11.01

Chapter 1, *Ever More Complete Multiple-Frame Models*, fourth paragraph, end

Added the footnote

“¹⁷ Consider the completeness of W. V. O. Quine’s holistic approach to believing well: Our concept of completeness concerns the supply side of the market for tools for helping us believe well. We find conflicts in our belief systems. *The philosophy of science is philosophy enough*. Now consider the completeness of the boundless approach to deciding well: Our concept of completeness concerns the supply and demand sides of the market for tools for helping us decide well. We find holes as well as conflicts in our belief systems, e.g., we see that Quine’s philosophy is too narrow (Morton White’s

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

problem) and that it lacks a normative element (Jaegwon Kim's problem). *The science of science is philosophy enough if and only if it includes pursuing all boundless factors of deciding well.*"

Chapter 3, *Public Entropy*, last paragraph

Changed "begin using this concept" to "begin" in the last sentence.

Chapter 4, *Modern Policy Mistakes*, third paragraph

Changed "impossibly hard" to "very hard" in the last sentence.

Chapter 5, introduction, third paragraph

Changed "Governments are" to "We may think of governments as" in the first sentence.

Chapter 5, *The Explicit Experiment*, third paragraph, second sentence

Added the footnote

"⁶ This refers to Article 1, Section 2, Paragraph 3 of the United States Constitution: "Representatives and direct Taxes shall be apportioned among the several States which may be included within this Union, according to their respective Numbers, which shall be determined by adding to the whole Number of free Persons, including those bound to Service for a Term of Years, and excluding Indians not taxed, three fifths of all other Persons." This clause effectively increased the political clout of southern states in the federal government. Arguably, it not only allowed slavery to expand into new territories, but also allowed the removal of most Indians from the south."

Changes in Version 2013.11.04

Chapter 1, *Steps for Building Multiple-Frame Models*, second paragraph, footnote

Changed "can, given our current ignorance of not only the current *quantum* state of the world but also all future *quantum* states of the world" to "can given our current ignorance of not only the current state of the world but also all possible future states of the world" in the first sentence.

Chapter 4, *Refining Finding Problems to Solve*, second paragraph

Changed "and" to "or" in the second sentence.

Chapter 6, *Mystical Oneness*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “others, **which encourages us to help those who suffer**” to “others” in the second sentence.

Changed “world **that we are trying to leave behind**” to “world” in the third sentence.

Chapter 7, *OODA Loop Analysis*, third paragraph

Changed “nations **in order to compete well**” to “nations” in the last sentence.

Chapter 8, last paragraph

Changed “means” to “means **of governing our minds well**” in the last sentence.

Appendix A, *The Big Picture*, second to last paragraph

Changed “**will**” to “**ought to**” in the second sentence of the block quote.

Appendix C, *On the Theology Wall*, first paragraph

Changed “**near** the center” to “**just above** the center” in the first sentence.

Appendix C, *On the Poetry Wall*, first paragraph

Changed “**Near** the center” to “**Just above** the center” in the second sentence.

Appendix C, *A Boundless View of the Whole*, third paragraph

Changed “**just below** the center” to “**at** the center” in all (2 occurrences).

Changes in Version 2013.11.05

Chapter 1, *Boundless Models of Deciding Well*, second paragraph, footnote

Changed “boundless end” to “boundless end: **encountering unimagined problems (“unknown unknowns”) provides us with opportunities to make major improvements to our models**” in the first sentence.

Chapter 8, second to last paragraph

Changed “**defined** reasoning well **as** governing our minds well” to “**claimed that** reasoning well **was a matter of** governing our minds well” in the first sentence.

Changed “**people**” to “**humans**” in the third sentence of the first footnote.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**citizens**” to “**humans**” in the sixth sentence of the first footnote.

Chapter 8, last paragraph

“**Governing our minds well helps us use the normally unconscious parts of our minds well. In truly progressive cultures, cultures in which good people produce good products and good products produce good people, we share the best means of governing our minds well. Private and public means of governing our minds well co-evolve.**”

was deleted.

Appendix C, introduction, last paragraph, footnote, end

Added the sentence:

“**The role of octagons, the two-part reason of Plato and Aristotle, the conflict between sophistic and philosophic art, and the meaning of the room as a whole did not.**”

Appendix C, *The Role of Julius II*, first paragraph

Changed “mission of **the church, which is to** bring ever more” to “mission of bring**ing** ever more **knowledge of**” in the last sentence.

Appendix C, *The Role of Julius II*, last paragraph, first footnote

“**Also reinforcing the claim that Julius II ought to be an enlightened jurist are the twelve wedge-shaped images of his family coat of arms, three around each of the four squares. The variety of sizes and shapes of these twelve images suggests that they are not major parts of the ceiling. We can easily imagine that the gold lotus-blossom roundels and bands around the oculus, four circles, four squares, and arched walls are the load-bearing parts of the ceiling structure. Adding strength and resilience to this structure are twelve wedge and four hourglass fillers. Holding these “worldly” fillers in place are narrow bands decorated with the heraldic colors of Julius II. The decoration on these bands is an unknotted version of the altar form.**”

was deleted.

Changes in Version 2013.11.19

Chapter 8, last paragraph, last footnote

Changed “**Following this literal meaning**” to “**Accordingly**” in the third sentence.

Appendix B, *Inducing the Creation of Knowledge*, last paragraph, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Too many yellow lights or a single red light signals too much stress to induce knowledge well.”

was changed to:

“Too many yellow lights signals too much stress to induce knowledge well. A red light signals a problem that calls for immediate attention.”

Appendix C, Black Clouds in Theology, second paragraph

Changed “a thousand years before Raphael painted this scene” to “fifteen hundred years ago” in the last sentence.

Appendix C, *Apollo and Marsyas*, title

Deleted the title, thereby combining this subsection with the the preceding subsection.

Appendix C, *The Role of Julius*, last paragraph, end

Added the subsection:

“Imagining the Designer

Imagine that you were an early sixteenth-century Roman cleric. Like most of your colleagues, you received a scholastic education. For reasons not completely clear to you at the time, you were drawn to Florentine Neoplatonism and Hermeticism. In communing with the members of this movement, rather than blazing a trail on your own, most of the symptoms of your break with medieval reality were more curious than sickening. Early in this process you began to see repeating forms in your mind’s eye. These images began with geometric forms, progressed to natural forms, and ended with surreal forms. Years of contemplating forms in geometry, nature, and your own unconscious gave you a talent for understanding symbols. This talent allowed you to excel in public relations. It also gave you an eye for true art.

“Pope Julius II so respected your talent that he assigned you the task of managing the decoration of his private library. The architectural form of this library was a mess. Not only was the room not square, not even its corners were square. As you contemplated how to bring order to this mess, you came to see your task as depicting a plan for bringing ever more knowledge of Holy Wisdom into the world.

“Your first step in depicting this strategy was choosing a symbol for the ideal frame for deciding well. You recognized that such a frame must be rational on the transcendent level: the transcendent ends of philosophy, poetry, theology, and jurisprudence are all facets of the transcendent end of deciding well. It must also be rational on the timeless level: pursuing any one boundless factor of deciding well calls for pursuing all of them. Further, you recognized that we lack the knowledge to pursue these boundless factors rationally.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“During one of your insightful reveries you imagined that an octagonal oculus captured the essence of transcendent and timeless rationality. You also imagined that the symbol of an ideal frame for deciding well must include not only this oculus but also the structure that supports it. Projecting such an ideal structure onto the imperfect ceiling of the library would distort it. The resulting asymmetries would symbolize our ignorance of how best to decide well. This insight struck you with the force of divine revelation. Accordingly, you chose to decorate this structure with repeating patterns from your early reveries.⁹ For the octagon, circles, squares, and tops of the arches, you used surreal forms on a gold field. For the parts of the arches that frame the wall frescoes, you used a gold geometric form on a blue field. In the gap between the surreal and geometric bands on the two shorter walls, you used a gold floral pattern on a blue field.

“To complete the temporal parts of the ceiling, you filled the four hourglass-shaped spaces with eight ancient Greek and Roman images that represent earth, air, wind, and water. You then filled the twelve distorted spaces between the circles, squares, and arches with the heraldry of Julius II. Finally, you cemented these twenty symbols in place with an unknotted version of the Gordian knot pattern.

“In packing so much symbolism into the ceiling, you effectively hid its meaning from medieval consciousness. To hide it more, and perhaps to disseminate it better subliminally, you hired the best young artist you could find, Raffaello Sanzio da Urbino (Raphael), to finish the work. He so surpassed your expectations that very few people now know of you, much less of your role in this great work.”

“⁹ You also chose the image of what appears to be a golden lotus blossom in a roundel to join the parts that form this ideal structure. Arguably, these roundels are symbols of divinely-inspired beliefs. For you, the question of whether such beliefs exist was never an issue. From the boundless view, the question of whether they exist is a minor issue. The major issue is whether our beliefs help us decide well.”

Changes in Version 2013.11.22

Chapter 1, *Temporal and Normative Frames*, second paragraph

Added the footnote:

“⁶ The distinction between normative and temporal is purposely jarring. As we shall see, it relates to the two-part reason of Plato and Aristotle.”

Chapter 1, *Seeing Through Apparent Miracles*, third paragraph

Changed “a timeless frame of deciding well, a frame” to “a frame” in the last sentence.

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**timeless** view” to “view” in the fourth sentence.

Entire document

Changed “**timeless**” to “**normative**” in all (37 occurrences).

Chapter 4, *Self-Similarity*, first paragraph, footnote, last two sentences

“In philosophical terms, (theory-laden) facts underdetermine theories that we use to explain causation. **We ought to choose the explanation that best helps us decide well.**”

were changed to:

“**We ought to choose the theory that best helps us decide well.** In philosophical terms, theory-laden facts underdetermine theories that we use to explain causation. **In choosing between theories that explain equally well within their own frame, we ought to choose the theory that rings truest with all that we currently know about deciding well.**”

Chapter 5, *Good Policies*, first paragraph, footnote

Changed “inventing” to “inventing **or discovering**” in the last sentence.

Added the sentence: “**For more about the distinction between inventing and discovering such forms, see Appendix A (The Science of Forms).**”

Appendix B, *Folding in Processes*, eighth paragraph

Changed “**including**” to “**which includes**” in the last sentence.

Appendix C, *On the Philosophy Wall*, first paragraph, second sentence

“**This octagon is part of a symbol of the two-part reason of Plato and Aristotle.**”

was moved ahead of the first image in this subsection. Changed punctuation in first and second sentences.

Appendix C, *On the Poetry Wall*, first paragraph

Changed “Holy Wisdom” to “**knowledge of** Holy Wisdom” in the last sentence.

Changed “**well** ever more wisely” to “ever more wisely” in the first sentence of the footnote.

Appendix C, *The Role of Julius II*, first paragraph, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In managing this conflict, Julius supports neither side, but rather the mission of bringing ever more knowledge of Holy Wisdom into the world.”

was deleted.

Appendix C, *The Role of Julius II*, first paragraph, new last two sentences

“To manage this conflict well, Julius II needs to see the bigger picture. This rings true with the image of Julius as Gregory IX on the wall dedicated to jurisprudence, where the apparent square-on-octagon platform on which he sits raises him above those around him.”

were promoted to a new paragraph.

Changes in Version 2013.11.26

Preface, sixth paragraph

Changed “strategy” to “**grand** strategy” in the second sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph, footnote, last sentence

“Following this line of thinking, the normative end of computing π well is a complex structure of knowledge rather than a simple number.”

was changed to:

“*Deciding well is the boundlessly pragmatic means of squaring the circle.*”

Appendix A, *Indispensable Forms*, first paragraph, footnote

Changed “regular/irregular” to “regular **versus** irregular” and “no-transform/**yes**-transform” to “no-transform **versus** transform” in the last sentence.

Appendix C, first paragraph

Added a comma to the Sagan movie quote.

Appendix C, *The Forgotten Role of Octagons*, first paragraph

Changed “**Equally**” to “**As**” in the last sentence.

Appendix C, *On the Poetry Wall*, first paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“As such, it is also a strategy for addressing the problem of calculating the value of π ever more wisely, hence of squaring a circle ever more wisely.”

was deleted.

Appendix C, *Imagining the Designer*, fourth paragraph

Changed “a blue field” to “an azure field” in the last two sentences (2 occurrences).

Changes in Version 2013.11.30

Chapter 6, *Mystical Oneness*, second paragraph, sixth and seventh sentences

“Ethical mysticism calls for us to feel the suffering of others. Magical mysticism calls for us to deny the reality of the world.”

were changed to:

“In pursuing ethical mysticism, we feel the suffering of others. In pursuing magical mysticism, we deny the reality of the world.”

Appendix C, *The Forgotten Role of Octagons*, third paragraph, last sentence

“This scene depicts a female representation of Wisdom (*Urania*, the Greek muse of astronomy) moving the mysterious element that keeps the heavens in motion (*celestial aether*).”

was changed to:

“This scene depicts a female representation of Wisdom (*Urania*, the Greek muse of astronomy) moving the mysterious element that sets or keeps the heavens in motion (*celestial aether*). On a deeper level, it depicts a belief about the relation between mind and matter: mind sets or keeps matter in motion.”

Appendix C, *On the Philosophy Wall*, end

Added the sentence:

“From the boundless view, both are symbols of squaring the circle: the first is philosophical and the second sophist.”

Appendix C, *Imagining the Designer*, second paragraph, sixth and seventh sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“**Projecting such an** ideal structure onto the imperfect ceiling of the library would distort **it.**”

were changed to:

“**Mapping the normative parts of this** ideal structure onto the imperfect ceiling of the library would **greatly** distort **the temporal parts.**”

Appendix C, *Imagining the Designer*, last paragraph

Changed “**effectively** hid” to “hid” in the second sentence.

Changes in Version 2013.12.07

Acknowledgments, fifth paragraph

Changed “our success to our ability to **decide (act and learn)**” to “**much of** our success to our ability to learn” in the third sentence.

Preface, tenth paragraph

Changed “**boundless** complements” to “**decision science** complements” in the first sentence.

Preface, last paragraph

Changed “**boundless** approach” to “approach” in the last sentence.

Chapter 1, Boundless Models of Deciding Well, first paragraph

Changed “**allocating resources** well **using a fixed stock of knowledge** does not include **learning** well” back to “**playing basketball** well does not include **swimming** well” in the last sentence.

Chapter 2, introduction, last paragraph, last two sentences

“This chapter offers **boundless** complements to the modern economic concepts of wealth, consumption, trade, production, taxation, and profit, **which we may use to become more effective in deciding well.** The decision science concepts help us become more effective and the modern economic concepts help us become more efficient.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“This chapter offers **decision science** complements to the modern economic concepts of wealth, consumption, trade, production, taxation, and profit. **The decision science concepts help us explain the world and the modern economic concepts help us predict it. The decision science concepts help us become more effective and the modern economic concepts help us become more efficient.**”

Chapter 4, *Self-Similarity*, first paragraph, footnote, last four sentences

“**More than one explanation may fit what we can sense. We ought to choose the theory that best helps us decide well. In philosophic terms,** theory-laden facts underdetermine theories that we use to explain causation. In choosing between theories that explain equally well within their own frame, we ought to choose the theory that rings truest with all that we currently know about deciding well.”

were changed to:

“**Theory-laden facts underdetermine theories that we use to explain causation. In choosing between theories that explain equally well within their own frame, we ought to choose the theory that rings truest with all that we currently know about deciding well. In other words, more than one explanation may fit what we can sense. We ought to choose the theory that best helps us decide well.**”

Chapter 5, *The Explicit Experiment*, last paragraph

Changed “**divinely** revealed truth” to “**claimed** revealed truth” in the last sentence.

Chapter 6, *Mystical Oneness*, first paragraph, last sentence

“**Satisfying this need allows us to** experience awe, rapture, and bliss.”

was changed to:

“**In** satisfying this need, **we** experience awe, rapture, and bliss.”

Chapter 6, *Worldly Benefits of Detachment*, last paragraph

Changed “mythic” to “**now** mythic” in the second sentence.

Chapter 7, *OODA Loop Analysis*, second paragraph

Changed “**Further,** it gave them **more** time” to “**It also** gave them time” in the last sentence.

Chapter 7, *OODA Loop Analysis*, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Boyd later used his OODA loop model to address the normative problem of living well. This called for defining **a normative end of competing well**. Boyd defined his concept of the normative end of competing well to be improving our fitness, as an organic whole, to shape and cope with an ever-changing environment. **It also called for adding a learning function to the basic cycle. Boyd expanded the orientation element to incorporate a learning function that includes not only our experiences but also our genetic heritage, cultural traditions, and tools for analyzing and synthesizing. Finally, it called for defining our relations with each other.** Boyd argued that we form groups on all scales up to and including nations.”

was changed to:

“Boyd later used his OODA loop model to address the normative problem of living well. This called for defining **what it is to win, for adding a learning function to his OODA loop, and for defining our relations with each other.** Boyd defined “winning” to be improving our fitness, as an organic whole, to shape and cope with an ever-changing environment; **added a learning function to the orientation step; and** argued that we form groups **for competing well** on all scales up to and including nations.”

Chapter 7, *The Grandest Possible Strategy*, footnote

Added the date “**on February 27, 1860**” to the first sentence.

Chapter 7, *The Scope of Biological Evolution*, end

Added the following footnote:

“¹⁸ **The boundless approach to deciding well uses a boundless heuristic algorithm. Using a metaphor made famous by philosopher Daniel Dennett (*Darwin’s Dangerous Idea: Evolution and the Meanings of Life*, New York, Simon & Schuster, 1995), this algorithm is an infinitely large crane that contains countless hooks for pulling ourselves higher. At any given time some of these hooks appear to us to be in line with the apex of the crane and others do not. Further, some of these hooks appear to be supported by the crane structure and others do not. We ought to be open to using whatever hooks best help us decide well. We also ought to take care not to let our passion for Wholeness overcome our reason.**”

Appendix C, *On the Philosophy Wall*, last three sentences

“The first is a boundless symbol of renaissance, of endlessly refining everyday thinking. The second is a modern symbol of the Renaissance, of a refinement of the knowledge of first-century BCE Roman engineer Vitruvius. **From the boundless view, both are symbols of squaring the circle: the first is philosophical and the second sophist.**”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the boundless view, both are symbols of renaissance. The first is a boundless symbol of renaissance, of endlessly refining everyday thinking. The second is a modern symbol of the Renaissance, of a refinement of the knowledge of first-century BCE Roman engineer Vitruvius. Both are also symbols of squaring the circle. The first relates to the *philosophy* of Plato and Aristotle. The second relates to the *sophistry* of Protagoras and Vitruvius.”

Appendix C, *On the Jurisprudence Wall*, first paragraph

Changed “more self-aware” to “**ever** more self-aware” in the last sentence.

Appendix C, *Black Clouds in Theology*, last paragraph

Changed “philosophical” to “philosophic” in all (2 occurrences).

Appendix C, *A Boundless View of the Whole*, first paragraph

Changed “forms” to “**internal** forms” in the last sentence.

Appendix C, *Imagining the Designer*, first paragraph, last two sentences

“This talent **allowed you to excel in public relations. It also** gave you an eye for true art.”

were changed to:

“This talent gave you an eye for true art.”

Appendix C, *Imagining the Designer*, third paragraph

Changed “**boundless factor of deciding well**” to “**of these normative ends**” in the third sentence.

Changed “**boundless factors**” to “**normative ends**” in the last sentence.

Appendix C, *Imagining the Designer*, last paragraph

“**In packing so much symbolism into the ceiling, you hid its meaning from medieval consciousness. To hide it more, and perhaps to disseminate it better subliminally,** you hired the best young artist you could find, Raffaello Sanzio da Urbino (Raphael), to **finish the work**. He so surpassed your expectations that very few people now know of you, much less of your role in this great work.”

was changed to:

“**After completing the essential structure of the ceiling** you hired the best young artist you could find, Raffaello Sanzio da Urbino (Raphael), to **complete the decoration of the**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

room. He so surpassed your expectations that very few people now know of you, much less of your role in this great work.”

Changes in Version 2013.12.10

Acknowledgments, third paragraph, second sentence

“For a third of a century Fred was extremely generous with his most precious resource, his time.”

was deleted.

Chapter 1, *Temporal and Normative Frames*, second paragraph, footnote

“The distinction between normative and temporal is purposely jarring. As we shall see, it relates to the two-part reason of Plato and Aristotle.”

was deleted.

Chapter 1, *Boundless Models of Deciding Well*, last paragraph

Changed “*Wisdom and the boundless end of believing well the Truth*” to “*Wisdom*” in the second sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph

Changed “view of this complex approach” to “complex view of this approach” in the last sentence.

Chapter 2, introduction, first paragraph

Changed “boundless view to deciding well” to “boundless view” in the sentence.

Changed “boundless tools” to “normative tools” in the last two sentences (2 occurrences).

Chapter 2, introduction, last paragraph

“Modern economics² provides us with temporal concepts, which we may use to become more efficient in solving given problems. This chapter offers decision science complements to the modern economic concepts of wealth, consumption, trade, production, taxation, and profit. The decision science concepts help us explain the world and the modern economic concepts help us predict it. The decision science concepts help

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

us become more effective and the modern economic concepts help us become more efficient.”

was changed to:

“Modern economics² provides us with temporal concepts, which we may use to know better the world *as we find it*. In contrast, the boundless approach to deciding well also provides us with normative concepts, which we may use to help know better the world *as we may form it*. This chapter offers normative complements to the modern economic concepts of wealth, consumption, trade, production, taxation, and profit.”

Chapter 2, Wealth, first paragraph

Changed “the boundless view” to “the normative view of boundless decision science” in the last sentence.

Chapter 2, Wealth, last paragraph, last three sentences

“From a modern view of science, the relevant question is which story best predicts how we will act. From the boundless view, it is which story best helps us decide well. *In explaining the world, we seek to know the world not as we find it, but rather as we may form it.*”

were changed to:

“From the temporal view of modern economic science, the relevant question is which story best predicts how we will act. From the normative view of boundless decision science, it is which story best helps us find problems to solve.”

Chapter 2, Consumption, first paragraph

Changed “the boundless view” to “the normative view of boundless decision science” in the third sentence.

Chapter 2, Tools for Pursuing Pleasure and Joy, last paragraph

Changed “the boundless view” to “the normative view of boundless decision science” in the seventh sentence.

Chapter 2, Trade, last paragraph

Changed “the boundless view” to “the normative view of boundless decision science” in the second sentence.

Chapter 2, Taxation, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “the **boundless** view” to “the **normative** view of **boundless decision science**” in the fifth sentence.

Chapter 2, Profit, first paragraph

Changed “the **boundless** view” to “the **normative** view of **boundless decision science**” in the third sentence.

Chapter 4, title and introduction

Replaced one sentence Einstein subtitle quote with the full quote from the first paragraph. Merged the truncated first paragraph with the second paragraph of the introduction.

Chapter 4, Self-Similarity, last paragraph

Changed “**cultures, and**” to “**and**” in the last sentence.

Chapter 6, Schweitzer quotes (subtitle and *Mystical Oneness* subsection)

Added footnote to subtitle quote in the HTML version. Deleted the first of the three paragraphs from the subsection quote, which was the same as the quote in the subtitle.

Appendix C, *On the Poetry Wall*, first paragraph

Changed “**the boundless ends of poetry, philosophy, jurisprudence, and theology**” to “**four boundless factors of deciding well**” in the last sentence.

Changes in Version 2013.12.12

Preface, eighth paragraph

Changed “currently know” to “currently **believe we** know” in the last sentence.

Chapter 1, *Temporal and Normative Ends*, first paragraph, third sentence

“**Because events have bounds in time, we** may call these *temporal ends*.”

was changed to:

“**We** may call these **temporally-bounded** ends *temporal ends*.”

Chapter 1, *Temporal and Normative Ends*, first paragraph, third sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Because processes have no bounds in time, we may call these *normative ends*.”

was changed to:

“We may call these **temporally-boundless** ends *normative ends*.”

Chapter 3, *Public Order*, last paragraph

“Policymakers who take the boundless approach promote a climate that helps people decide well. This gives rise to a **boundless** concept of public order that concerns how well people decide. From this view, increasing *boundless* public order is always good. Increasing *temporal* public order is good when there is too little of it and bad when there is too much of it. Too little **temporal** order threatens the networks of knowledge-in-use that bind us together. Too much **temporal** order reduces the need for people to decide well, which, over time, reduces the ability of people to decide well.”

was changed to:

“Policymakers who take the boundless approach promote a climate that helps people decide well. This gives rise to a **normative** concept of public order that concerns how well people decide **across the whole of space-time**. We may call this **temporally-boundless normative concept** *boundless order*. We may also call its **temporally-bounded counterpart** *current order*. From this view, increasing **boundless** public order is always good. Increasing **current** public order is good when there is too little of it and bad when there is too much of it. Too little **current** order threatens the networks of knowledge-in-use that bind us together. Too much **current** order reduces the need for people to decide well, which, over time, reduces the ability of people to decide well.”

Chapter 5, *Pursue Boundless, not Current Order*, first paragraph

Changed “boundless order” to “boundless **public** order” in the first sentence.

Changed “boundless order” to “boundless **public** order” in the second sentence.

Appendix C, *Imagining the Designer*, third paragraph

Changed “**the transcendent end of deciding well**” to “**Holy Wisdom**” in the first sentence.

Changed “**normative** ends” to “ends” in the last sentence.

Appendix C, *Imagining the Designer*, fifth paragraph

Changed “**ancient Greek and Roman** images” to “**classical** images” in the first sentence.

Changed “cemented” to “**metaphorically** cemented” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2013.12.14

Chapter 1, *Temporal and Normative Frames*, title

Changed title to “*Temporal and Normative Models*.”

Chapter 1, *Temporal and Normative Models*, first two paragraphs

“Addressing the problem of choosing frames well by deciding well calls for understanding what makes frames useful in deciding well. Useful frames are frames that help us achieve our ends. Some ends concern events. We may call these temporally-bounded ends *temporal ends*. Winning a basketball game is a temporal end. **We may call frames that help us achieve temporal ends *temporal frames*.**

“Other ends concern processes. We may call these temporally-boundless ends *normative ends*. Playing basketball well is a normative end. We may call frames that help us achieve normative ends *normative frames*.

were changed to:

“Addressing the problem of choosing frames well by deciding well calls for understanding what makes frames useful in deciding well. Useful frames are frames that help us achieve our ends. Some ends concern events. We may call these temporally-bounded ends *temporal ends*. Winning a basketball game is a temporal end. Other ends concern processes. We may call these temporally-boundless ends *normative ends*. Playing basketball well is a normative end. We may call **frames that help us achieve temporal ends *temporal frames* and frames that help us achieve normative ends *normative frames*.**”

Chapter 1, *Temporal and Normative Models*, last two paragraphs

Merged these two paragraphs.

Chapter 1, *The EOQ/RTS Example*, first two paragraphs

“We refine frames by removing waste from them. Sources of waste include terms that refer to more than one concept and pairs of concepts defined in terms of each other. We may call structures useful in reducing our sensations to concepts from which we have removed all waste that it is currently economic for us to remove *models*.

“In keeping with our distinction between temporal and normative frames, we may distinguish between temporal and normative models. We can see this distinction in two models for helping us to decide how often to set up machine tools. The first is the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

temporal *economic order quantity* (EOQ) model. The second is the normative *rapid tool setting* (RTS) model.”

were moved to the end of the preceding subsection.

Chapter 2, Wealth, last paragraph

“In thinking about what we need to live well, we need to consider the self-fulfilling aspect of the stories we use to explain our needs. If our story is that we are naked apes, we evolve as if we are naked apes. In contrast, if our story is that we are ignorant people seeking to act wisely, we will evolve as if we are ignorant people seeking to act wisely. From the temporal view of modern economic science, the relevant question is which story best predicts how we will act. From the normative view of boundless decision science, it is which story best helps us find problems to solve.”

was deleted.

Chapter 3, *Overcoming Constraints in Deciding Well*, first paragraph

Changed “ π ” to “ π , the modern counterpart to the classical problem of squaring a circle” in the last sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, third paragraph

Changed “biological” to “evolutionary” in the last sentence.

Chapter 3, *Three Approaches to Policy*, second paragraph

Changed “biological” to “evolutionary” in the first sentence.

Chapter 3, *Public Order*, second paragraph

Changed “biological” to “evolutionary” in the first sentence.

Chapter 3, *Overcoming Constraints*, last paragraph

Removed italics from the last sentence: “Deciding well is the boundlessly pragmatic means of squaring the circle.”

Chapter 5, *The Explicit Experiment*, last paragraph

Changed “claimed” to “claims of” in the last sentence.

Chapter 6, introduction, last paragraph

Changed “reconcile” to “move ever closer to reconciling” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Added the sentence:

“We can begin by considering Abraham Maslow’s humanistic approach to understanding our spiritual needs.”

Chapter 7, *Boyd's Grand Strategy*, last paragraph

Changed “modern **biological**” to “modern” in the first sentence.

Changed “modern-**biological/modern-dialectical**” to “modern” in the first sentence.

Chapter 8, second paragraph

Changed “**bounded**” to “**temporal**” in all (3 occurrences).

Chapter 8, third paragraph

Changed “solution” to “**solutions**” in the first sentence.

Changes in Version 2013.12.16

Chapter 1, introduction, second paragraph

Changed “**a** book” to “**this** book” in the second sentence.

Chapter 1, *Seeing Through Apparent Miracles*, first paragraph

Changed “**for the same cost**,” to “,” in all (3 occurrences).

Chapter 1, *The Truth and Wisdom*, last paragraph

Changed “**boundless** factors” to “factors” in the sixth sentence.

Chapter 1, *Steps for Building Multiple-Frame Models for Deciding Well*, first paragraph

Changed “**universally useful and inexhaustible** factors of deciding well **that we can never have in excess**” to “**boundless** factors of deciding well” in the second sentence.

Chapter 1, *Steps for Building Multiple-Frame Models for Deciding Well*, first paragraph

Changed ““**boundless factor**”” to “**facet of Wisdom**” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *Ever More Complete Multiple-Frame Models*, first paragraph

Changed “do so” to “**can** do so” in the sixth sentence.

Chapter 2, *Tools for Deciding Well*, first paragraph

Changed “nothing, **who blindly follow their leaders or culture,**” to “nothing” in the last sentence.

Chapter 3, *Contemplating the Way Forward*, first paragraph

Changed “**six**” to “**three**” in all (3 occurrences).

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, third paragraph

Changed “**describe**” to “**predict**” in the last sentence.

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, fourth paragraph

Changed “**describe**” to “**predict**” in the first sentence.

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, seventh paragraph

Changed “**We**” to “**Using this class, we**” in the first sentence.

Chapter 4, *Academic Fields*, first paragraph

Changed “**Similarly**” to “**In creating academic fields**” in the last sentence.

Chapter 7, introduction, first paragraph

Changed “**all** of us **are not**” to “**none** of us **is**” in the second sentence.

Appendix C, *A Boundless View of the Whole*, first paragraph, fourth through seventh sentences

“The second thing to notice **is the mishmash of different forms separated by** plain borders. With the exception of the borders along the non-parallel walls and the cursive borders within the large square with the crossed-keys symbol of the papacy at its center, these borders are either parallel or perpendicular to the two parallel walls. **These** parallel and perpendicular borders form rectangles that contain locally coherent forms. By far the most complex of these forms is the large square containing the symbol of the papacy at its center.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“The second thing to notice **are the fields formed by the** plain borders. With the exception of the borders along the non-parallel walls and the cursive borders within the large square with the crossed-keys symbol of the papacy at its center, these borders are either parallel or perpendicular to the two parallel walls. **Most of** these parallel and perpendicular borders form rectangles that contain locally coherent **geometric** forms. The major exception is the large square containing the symbol of the papacy at its center, **which contains more complex geometric forms.**”

Changes in Version 2013.12.21

Chapter 4, *Modern Policy Mistakes*, fourth paragraph, last footnote

Added Richard Hudson to the footnote reference.

Chapter 5, *The Explicit Experiment*, third paragraph

“This clause effectively increased the political clout of southern states in the federal government. **Arguably, it not only allowed slavery to expand into new territories but also allowed the removal of Indians from the south.**”

were changed to:

“This clause effectively increased the political clout of southern states in the federal government **enough not only to maintain slavery in the southern states but also to expand it into new territories.**”

Appendix A, title quote

Returned the second title quote:

“**“In mathematics the art of proposing a question must be held of higher value than solving it.” — Georg Cantor²**”

“² Cantor, Georg, “De aequationibus secundi gradus indeterminatis” (Doctoral dissertation, University of Berlin, 1867).”

Appendix A, introduction, third to last paragraph, footnote, end

Added the following sentences:

“**Also note that N2 in the first transformation process and Y2 in the second process are line segments, which we may or may not classify as (degenerate) polygons. To keep**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

things simple, this analysis stops at N3 for both processes. Going further would add little to our understanding of the boundlessly pragmatic relation between mathematics and science.”

Appendix A, introduction, second to last paragraph, footnote, last two sentences

“Note that this analysis ignores degenerate polygons and non-Euclidean geometries. Including them here would add little to our understanding of the boundlessly pragmatic relation between mathematics and science.”

were deleted.

Appendix C, A Boundless View of the Whole, second paragraph, first sentence

Added the footnote:

“^s If this floor were a representation of the modern rational mindset rather than the medieval rational mindset, the large working area of the room would represent the modern natural sciences and the surrounding rectangles would represent all other fields. From the boundless view, the source of the problem with the modern rational mindset concerns pursuing the truth about the current state of the world in which we live rather than the truth about the world in which we live. To learn how such views affect induction, read Nelson Goodman’s *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1955). To begin to understand the effects of the misuse of such views, consider the effects of assuming that the distribution of changes in financial asset prices are normally distributed, an all too common assumption based on the belief that there is no direction to cultural evolution.”

Appendix C, *Imagining the Designer*, first paragraph

“Years of contemplating forms in geometry, nature, and your own unconscious gave you a talent for understanding symbols. This talent gave you an eye for true art.”

were changed to:

“Years of contemplating forms in geometry, nature, and your own unconscious gave you a talent for using superrational forms, forms for pursuing Beauty.”

Appendix C, *Imagining the Designer*, fifth paragraph

Changed “Finally, you” to “You” in the last sentence.

Changes in Version 2013.12.24

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, last paragraph, first paragraph

Changed “**human** mind” to “mind” in all (2 occurrences).

Changed “**humans**” to “**people**” in all (2 occurrences).

Appendix A, introduction, seventh paragraph

Changed “**transformation** process rather than the results of **transforming objects**” to “process rather than **the process itself**” in the fourth sentence.

Appendix A, introduction, eighth paragraph

Changed “**process rather than the results of the transforming objects**” to “**process**” in the first sentence.

Appendix A, introduction, eleventh paragraph, footnote

Changed “**algebraically**” to “**mathematically**” in all (2 occurrences).

Appendix C, A Boundless View of the Whole, second paragraph, footnote, end

Added the sentence:

“**To begin to understand the effects of the misuse of such views, consider the effects of assuming that the distribution of changes in financial asset prices are normally distributed, an all too common assumption based on the belief that there is no direction to cultural evolution.**”

Appendix C, *Imagining the Designer*, first paragraph

Changed “**sickening**” to “**distressing**” in the fourth sentence.

Changes in Version 2013.12.28

Acknowledgments, last paragraph

Changed “self-referential” to “**independent of beliefs and circumstances, hence self-referential**” in the last sentence.

Chapter 1, *The EOQ/RTS Example*, second paragraph

Changed “**The** temporal **frame of the** EOQ model **includes the assumption**” to “**In using** the temporal EOQ model, **we presume**” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**assumption**” to “**presumption**” in the second sentence.

Chapter 1, *The EOQ/RTS Example*, last paragraph

Changed “**rapidly**” to “**well**” in the last sentence.

Chapter 1, *The Truth and Wisdom*, last paragraph

Changed “**knowledge resources**” to “**facets of Wisdom**” in the fourth sentence.

Chapter 1, *Seeing Through Apparent Miracles*, third paragraph, first two sentences

“Similarly, Toyota has performed apparent miracles by **quickly pushing back its efficiency frontiers.**” **It has thrived by** learning well.”

were changed to:

“Similarly, Toyota has performed apparent miracles by learning well.”

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph, last sentence

Inserted the sentence:

“**We learn to handle unexpected events ever more wisely.**”

Chapter 1, *Ever More Complete Multiple-Frame Models*, fourth paragraph, footnote

Changed “*boundless factors of deciding well*” to “*facets of the boundless end of deciding well*” in the last sentence.

Appendix A, introduction, seventh paragraph

Changed “**this** superficial approach” to “**such a** superficial approach” in the last sentence.

Appendix A, *Indispensable Forms*, last paragraph, end

Added the paragraph:

“**From the modern view of Kurt Gödel, mathematics underlies science and more than logic underlies mathematics. From the boundless view, mathematics underlies science and science is self-referential, hence mathematics is a form of science. The transcendental end of mathematics is complete knowledge of the set of all forms that are indispensable to pursuing the boundless end of deciding well.**”

Appendix C, introduction, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**Beauty**” to “**Wisdom**” in the last sentence.

Appendix C, *Imagining the Designer*, last paragraph

Changed “**great work**” to “**magnum opus**” in the last sentence.

Changes in Version 2013.12.31

Acknowledgments, last paragraph

Changed “**The best**” to “**They**” in the second sentence.

Preface, fifteenth paragraph

Changed “biological evolution” to “biological evolution **to include cultural evolution**” in the last sentence.

Chapter 1, *The Truth and Wisdom*, fifth paragraph, footnote, end

Added the sentence:

“**To learn more about the limits of temporal language, read Nelson Goodman’s *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1955).**”

Appendix C, *A Boundless View of the Whole*, second paragraph, footnote, third sentence

“**To learn how such views affect induction, read Nelson Goodman’s *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1955).**”

was deleted.

Changes in Version 2013.03.30

Entire Document

Changed “sovereign rights story” to “sovereign-**rights** story” in all (9 occurrences).

Appendices

Removed Appendix B (stub) from the work.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Removed references to Appendix B from footnotes in the *Public Entropy* subsection of the third chapter and the Good Policies section in the fifth chapter.

Demoted Appendix A to Appendix B. Updated references in footnotes in the first and third chapters.

Promoted Appendix C to Appendix A. Deleted reference to this appendix in a footnote in the *Academic Fields* subsection of the fourth chapter. Added a reference to the Georg Cantor footnote in the first chapter (see below).

Acknowledgments, first paragraph

Changed “**public** high school” to “high school” in the first sentence.

Acknowledgments, last paragraph

Changed “assistant” to “assistant **for financial matters**” in the second sentence.

Deleted “(1947-9)” and “(1949-59)” from the second sentence.

Changed “(1942-6)” to “**during the Second World War**” in the fourth sentence.

Preface, entire section

Changed “**complex adaptive**” to “” in all (3 occurrences).

Preface, seventh paragraph

Changed “of reason” to “of reason **than rationality**” in the last sentence.

Preface, eighth paragraph

Changed “*the science of science*, ” to “ ” in the first sentence.

Chapter 1, title quote, footnote

Changed “commonly known **by various courtesy and honorary names, which include**” to “**more** commonly known **as**” in the last sentence.

Chapter 1, Choosing Frames Well, first paragraph

Changed “**that help us survive and thrive. We naturally** arrange **concepts**” to “**, which we** arrange” in the first two sentences.

Changed “**useful** structures **for** reducing our sensations **of the world**” to “structures **useful in** reducing our sensations” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Choosing Frames Well, second paragraph

Changed “use to reduce our sensations of the world to concepts” to “use” in the first sentence.

Chapter 1, Choosing Frames Well, last paragraph, footnote, last three sentences

“From this view, mathematics is the *science* of patterns. Rather than logic, its basis is the reason of pursuing the timeless end of deciding well. For more about this concept of mathematics, see Appendix A.”

were changed to:

“For more about this, see Appendix A.”

Chapter 1, Choosing Frames Well, last paragraph, footnote, end

Added the sentence:

“For more about this concept of mathematics, see Appendix A.”

Chapter 1, Useful Frames, first paragraph, last three sentences

Changed “to help” to “that help” in all (2 occurrences).

Promoted sentences to a new paragraph.

Chapter 1, *The EOQ/RTS Example*, last paragraph

Changed “produce” to “produce these goods” in the fifth sentence.

Chapter 1, *Seeing Through Apparent Miracles*, second paragraph

Changed “communicate his experiences in Spaceland” to “explain his journey” in the sixth sentence.

Chapter 1, *Seeing Through Apparent Miracles*, third paragraph

Changed “these apparent miracles” to “their system” in the third sentence.

Chapter 1, Values, third paragraph, footnote

Changed “temporal view third person plural to timeless view first person plural” to “third-person to first-person” in the third sentence.

Chapter 1, Values, fifth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “invariant with respect to” to “the same for all” in the second sentence.

Changed “English” to “Europeans” in all (3 occurrences).

Inserted a paragraph break after the second sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, first paragraph, footnote

“In other words, there exists a virtuous circle between deciding well and believing well.”

was deleted.

Chapter 1, Values, last paragraph, third sentence

“¹³ We might also call the timeless end of living well *the Good, Well-being, Welfare, or Eudaimonia*. ‘Happiness’ has the advantage of highlighting the temporal nature of the prevailing concept of happiness (a state of well-being).”

was deleted.

Chapter 1, Timeless Reason, entire section

Changed “symbol for” to “symbol of” in all (7 occurrences).

Chapter 1, Timeless Reason, first two paragraphs

“From the view of this multiple-frame approach to deciding well, hereafter referred to simply as *the multiple-frame approach*, expanding the scope of the problems we face helps us find better problems to solve. When we expand the scope of these problems to the limits of imagination, a structure of values independent of beliefs and circumstances emerges. Understanding the process by which we best progress toward these invariant ends can help us progress ever more readily.¹⁵

“The process by which we best progress towards these invariant ends involves distinguishing between the models we use to help us solve given problems, the best of which are those of modern science, and those we use to help us find problems to solve, the best of which concern pursuing the boundless factors of deciding well.”

were changed to:

“From the view of this multiple-frame approach¹⁵ to deciding well, hereafter referred to simply as *the multiple-frame approach*, involves distinguishing between the models we use to help us solve given problems and those we use to help us find problems to solve.”

Chapter 1, Timeless Reason, new second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “rationality (the reasoning of geometry, mathematics, and logic)” to “rationality” in the first sentence.

Deleted the last three sentences:

“If we are intellectually honest, we admit that these models can never be complete. There can never be a theory of everything. There can only be strategies for learning everything, which includes learning ever more about strategies for learning everything.”

Chapter 1, Timeless Reason, new third through fifth paragraphs

“In using the second type of model, we explicitly include what we do not currently know into our models of the world. In effect, we choose to address the problem that contains all other problems in pursuing the timeless end of deciding well. We divide this universal problem into infinitely large parts, each of which concerns how best to pursue a boundless factor of deciding well. We then use these infinitely large, partial models of the universal problem to help us find and judge problems to solve. If a problem rings true with all of these partial models, we have found a beautiful problem to solve, a problem that is consistent with all that we currently know about pursuing the timeless end of deciding well.

“In choosing to use the second type of model, we choose to address problems that are too complex to address using temporal (rational/modern) reason alone. We may call this way of thinking about problems too complex to address using temporal reason alone *timeless reason*.¹⁶

“Timeless reason concerns the models we use to find problems to solve in pursuing the timeless end of deciding well. In building these models, we face problems. The most basic of these problems is the problem of whether the problem we believe is best is indeed best. Dwight Eisenhower provided us with a solution to this problem: “If a problem cannot be solved, enlarge it.” If we follow this simple maxim to its logical conclusion, we end with the problem that contains all other problems in deciding well. Our problem then becomes one of how best to address this universal problem.”

“¹⁶ Pragmatic philosophers may find this distinction between temporal and timeless reason useful in addressing problems raised by Nelson Goodman in his book *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1983).”

were changed to:

“In using the second type of model, we explicitly include what we do not currently know into our models of the world. We use these models to help us find problems to solve. The most basic of these problems is the problem of whether the problem we believe is best is indeed best. Dwight Eisenhower provided us with a solution to this problem: “If a problem cannot be solved, enlarge it.” Following this simple advice

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

completely, we end with the problem that contains all other problems in deciding well. Our problem then becomes one of how best to address this universal problem.”

Chapter 1, Timeless Reason, last paragraph

Changed “formal” to “logically consistent and complete” in the first sentence.

Changed “this knowledge” to “these provisions” in the last sentence.

Chapter 1, Timeless Beauty, first paragraph

Changed “multiple-frame” to “timeless” in the first sentence.

Changed “efficiencies functioning on multiple dimensions” to “efficiency functioning on multiple levels” in the third sentence.

Changed “are the efficiencies” to “is the efficiency” in the last sentence.

Chapter 1, Timeless Beauty, third paragraph

Changed “the *Stanza della Segnatura*” to “this library” in the first sentence.

Changed “discovering” to “learning” in the last sentence.

Chapter 1, Timeless Beauty, fourth paragraph, second through last sentences

Added names of dialogs to the two Platonic themes (*Protagoras* and *Timaeus*) to the first sentence.

Changed “quintessence” to “aether” in the fifth sentence.

Added the following paragraph at the end of the sixth sentence:

“¹⁶ Taken together with the octagonal oculus, the pursuits of Beauty, Truth, Justice, and Wholeness form a Latin cross with the long member representing the factor in mind. We can clearly see this cross in the horizontal and vertical rays emanating from the symbol of the Holy Ghost (encircled dove) in the fresco below the theology circle. Looking at this fresco, the factor we have in mind is Wholeness. A high-resolution image of this fresco is available online at http://upload.wikimedia.org/wikipedia/commons/1/19/Raphael_-_Disputation_of_the_Holy_Sacrament.jpg (31 December 2012).”

Changed “multiple-frame” to “timeless” and “discovering” to “learning” in the last sentence.

Promoted the last sentence to a new paragraph and added the following:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the timeless view of this work, this Tantalean image represents learning ever more about both Wisdom and the world. The four aspects of virtue represent the timeless ends of contemplating well (Beauty), believing well (the Truth), governing ourselves well (Justice), and linking well with something infinitely greater than ourselves (Wholeness). The four putti holding up the papal symbol stand at the center of the edges of the octagon nearest to these boundless factors of deciding well. Three of the four putti tethering down this symbol stand at the center of the edges nearest to earth, water, and air. The putto that ought to stand at the center of the edge nearest to fire instead sits on the corner of fire and theology with his tether clearly in the domain of theology. This greater tension in theology concerns the conflict between our current beliefs about the pursuit of Wholeness and the true pursuit of Wholeness. Given our imperfect knowledge of pursuing Wisdom, the pursuits of Wholeness and the Truth, though interwoven, are not one and the same.¹⁷”

¹⁷ In a letter to Marcellinus of Carthage, Augustine of Hippo addressed this issue: “If anyone shall set the authority of Holy Writ against clear and manifest reason, he who does this knows not what he has undertaken; for he opposes to the truth not the meaning of the Bible, which is beyond his comprehension, but rather his own interpretation; not what is in the Bible, but what he has found in himself and imagines to be there.” In a letter to Christina of Lorraine concerning the use of biblical quotations in science, Galileo Galilei used this quote to buttress the claim that the Bible concerns how to go to heaven, not how heaven goes. An English translation of Galileo’s letter is available online at <<http://www.college.columbia.edu/core/sites/core/files/text/Galileo.pdf>> (31 December 2012).”

Chapter 1, Timeless Beauty, new sixth paragraph

Changed “now known as *The School of Athens*” to “below the philosophy circle” in the first sentence.

Changed “floor symbol with the dynamism of the ceiling symbol” to “square-within-an-octagon-within-a-square pattern with the dynamism of the oculus” in the last sentence.

Chapter 1, Timeless Beauty, new seventh paragraph, third through fifth sentences

“A symbol of following this advice would combine elements of the symbol of the reasoning on which Plato and Aristotle stand with those of the symbol of pursuing Wisdom and worldly knowledge on the ceiling. Ironically, a means of combining these two symbols lies beneath our feet as we look up at them in the *Stanza della Segnatura*. We find this means in a crude version of a self-similar pattern known to Roman artisans since the late eleventh century:”

were changed to:

“A symbol of this aspiration would combine elements of the symbol of the reasoning on which Plato and Aristotle stand with those of the symbol of pursuing Wisdom and

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

worldly knowledge in the center of the ceiling. In his description of refining reason at the end of Book IX of *The Republic*, Plato provided us with a means of combining these elements into such a symbol. His Socrates describes the human psyche as consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. And so on to infinity. Our hydra parts are ruled by desire, our lion parts by spirit, and our human parts by reason. We refine reason by having our human parts train our lion parts to control our hydra parts. Ironically, a visual means of expressing this means of refining reason lies beneath our feet as we look up at the oculus. We find this means in a crude version of a self-similar tile pattern known to Roman artisans since the late eleventh century:”

Chapter 1, Timeless Beauty, new eighth paragraph

Changed “strategy we use to address problems too complex to address using temporal reason alone” to “models we use to find problems to solve in pursuing the timeless end of deciding well” in the first sentence.

Changed “models of the world” to “these models” in the second sentence.

Chapter 1, Timeless Beauty, second to last paragraph

Changed “the pre-Socratic Greek philosopher of flux, of endless change” to “which visually connects the square-within-a-square-within-a-square floor pattern (endless rationality) to the square-within-an-octagon-within-a-square floor pattern (reason of Plato and Aristotle)” in the first sentence.

Changed “conflicting two-point” to “two-point” in the fourth sentence.

Deleted the second sentence: “This figure visually connects the square-within-a-square-within-a-square floor pattern (endless rationality) to the square-within-an-octagon-within-a-square pattern (reason of Plato and Aristotle).”

Chapter 1, Timeless Beauty, second to last paragraph, second to last sentence

“Raphael completed what many people believe to be his greatest work without this figure. Some art historians believe that he added it as a symbol of inspired genius in response to seeing Michelangelo’s recently-completed figure of Jeremiah on the ceiling of the Sistine Chapel.¹⁹ Regardless of the truth of this belief, we can see that the figure of Heraclitus visually connects a symbol of endless rationality (a square within a square within a square) to a symbol of the reason of Plato and Aristotle (a square within an octagon within a square). As Heraclitus contemplates the symbol of endless rationality under his feet, he records his thoughts on the level of his heart. The architectural block on which he both writes and leans not only is out of line with the rest of the architecture in the fresco, but also violates its single-point perspective with a conflicting two-point perspective. This striking juxtaposition reminds us of the problem of representing higher

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

dimensional objects, A. Square's "up-but-not-north" problem. From all of these cues, it is easy to imagine Heraclitus suddenly inspired to replace each of the squares in the pattern beneath his feet with the more complex pattern slightly above his head, thereby creating a truncated version of the endlessly self-similar image shown above:"

"¹⁹ Columbia University's Art Humanities Series video on *The School of Athens* makes this point. It is available online at <<http://www.youtube.com/watch?v=uOrG6jfBzEU>> (22 December 2012)."

were changed to:

"This figure visually connects the square-within-a-square-within-a-square floor pattern (endless rationality) to a square-within-an-octagon-within-a-square pattern (reason of Plato and Aristotle). As Heraclitus contemplates the pattern under his feet, he records his thoughts on the level of his heart. The architectural block on which he both writes and leans not only is out of line with the rest of the architecture in the fresco, but also violates its single-point perspective with a conflicting two-point perspective. This striking juxtaposition reminds us of the problem of representing higher dimensional objects, of A. Square's up-but-not-north problem. From all of these cues, it is easy to imagine Heraclitus suddenly inspired to replace each of the squares in the pattern beneath his feet with the more complex pattern slightly above his head, thereby creating a three-level version of the six-level image shown above:²¹"

"²¹ Raphael completed the philosophy fresco without the figure of Heraclitus. Some art historians believe that he added it as a symbol of inspired genius in response to seeing Michelangelo's recently-completed figure of Jeremiah on the ceiling of the Sistine Chapel. The obvious reason that Raphael did not add this self-similar symbol of refining reason at the same time is that he did not imagine it. An alternative reason is that there was no place for it. Replacing the putti above the oculus in the ceiling would have better integrated the fresco dedicated to philosophy. However, it would have harmed the integration of the room as a whole by damaging the relation between the ceiling and the fresco dedicated to theology, particularly the common personification of natural phenomena that we do not yet understand."

Chapter 1, Timeless Beauty, last paragraph

"As a symbol of the Renaissance, compare this symbol to Leonardo da Vinci's *Vitruvian Man*, which represents the techno-science of first-century BCE Roman engineer Vitruvius:

[Vitruvian Man]

In as much as *Vitruvian Man* became a political banner for temporal reason, we likely would have been better off with this symbol of refining reason. To pursue Wisdom well, we must beware of the foolish use of such temporal symbols as *Vitruvian Man* and of such temporal beliefs as the Protagorean sophistry that we associate with it (Man is the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

measure of all things, of things which are, that they are, and of things which are not, that they are not.””

was changed to:

“[Three-level imagine of the square-within-an-octagon-within-a-square]

Compare this symbol to Leonardo da Vinci’s *Vitruvian Man*:

[Vitruvian Man]

The first is a symbol of refining the pursuit of the timeless end of deciding well (Wisdom) and the second is a symbol of a refinement of classical knowledge (the techniques of first-century BCE Roman engineer Vitruvius). The first is a symbol of renaissance and the second is a symbol of the Renaissance.”

Chapter 1, end

Added the following section:

“**Overview**

The spirit of our age concerns breaking unwieldy wholes into parts in order to solve problems better. A major danger in breaking wholes into parts is forgetting to consider the infinitely greater whole, which is important not only in philosophy (the induction problem) and physics (the entanglement problem), but also in economics (the learning problem). Although complete knowledge of this whole will remain forever beyond our grasp, we must not pass over it in silence. Expanding the scope of the problems we face helps us find better problems to solve. When we expand the scope of these problems to the limits of imagination, a structure of values independent of beliefs and circumstances emerges. Understanding the process by which we best progress toward these invariant ends can help us progress ever more readily.”

Chapter 2, Invariant Tools for Living Well, entire section

Changed “invariant” to “timeless” in all (4 occurrences).

Chapter 2, Wealth, entire section

Removed all italics.

Chapter 2, Timeless Tools for Living Well, second paragraph, footnote, last two sentences

“The “recursionist” approach to economics put forth in this work competes against the Austrian and Marxist schools in describing the world as it is in the process of becoming and prescribing the world as it ought to be. Note that the difference between tools for

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

describing the world as it is in the process of becoming and tools for prescribing the world as it ought to be is the reasonable claim that we ought to live well.”

were changed to:

“The “recursionist” approach to economics put forth in this work competes against the Austrian and Marxist schools in describing the world as it is in the process of becoming. Given that we ought to live well, it also competes against these two schools in prescribing the world as it ought to be.”

Chapter 2, Timeless Tools for Living Well, last paragraph

Changed “the way that the inexhaustibility of knowledge useful in living well creates symmetry in deciding well” to “the unity of virtue” in the last sentence.

Chapter 2, *Pleasure and Pain*, fifth paragraph

Changed “complete pleasure (ecstasy)” to “ecstasy (complete pleasure)” in the last sentence.

Chapter 2, *Pleasure and Pain*, last paragraph

Changed “; cause overwhelming emotions and appetites; retard learning; and, in cases of panic and delirium, impair reason” to “, impair reason, and retard learning” in the second sentence.

Chapter 2, *Three Common Mistakes*, last paragraph

Changed “, a designer handbag was produced off the books, or” to “or” in the second sentence.

Chapter 3, *Contemplating the Way Forward*, last paragraph

Changed “processes” to “processes for deciding well” in the second sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, first paragraph, footnote

Changed “programmed rules” to “rules” in the third sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, third paragraph

Changed “2012” to “today” in the first sentence.

Changed “biological” to “modern biological” in the last sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “means of” to “approach to” in the last sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph, footnote, last five sentences

“From the multiple-frame view, it takes us from the realm of mathematics to the realm of science. We best address the problem of computing π (well) by pursuing the timeless end of deciding well. Following this line of thinking, **there is little difference between computing the value of π and pursuing Wisdom. The timeless end of computing π (well) is a complex structure of knowledge rather than a simple number. Further**, refining the process of computing the value of π (well) is part of the process of computing the value of π (well).”

were changed to:

“ From the multiple-frame view, it takes us from the realm of mathematics to the realm of **self-referential** science. We best address the problem of computing π (well) by pursuing the timeless end of deciding well. Following this line of thinking, refining the process of computing the value of π (well) is part of the process of computing the value of π (well). **Further, the timeless end of computing π (well) is a complex structure of knowledge rather than a simple number.**”

Chapter 3, *Three Approaches to Policy*, second paragraph

Changed “biological” to “modern biological” in the first sentence.

Chapter 3, *Public Order*, entire subsection

Changed “invariant” to “timeless” in all (2 occurrences).

Chapter 3, *Public Order*, second paragraph

Changed “biological” to “modern biological” in the first sentence.

Chapter 3, *Public Entropy*, third paragraph, footnote

Changed “about how” to “for how” in the fifth sentence.

Chapter 3, *Public Entropy*, last paragraph, footnote, last sentence

“**For more about inducing the creation of useful knowledge, see Appendix B.**”

was deleted.

Chapter 3, *Forward-Looking Science*, title

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “*Forward-Looking*” to “*Decision.*”

Chapter 3, *Decision Science*, sixth paragraph

Changed “the world” to “deciding well” in the fourth sentence.

Chapter 3, *Decision Science*, seventh paragraph, last two sentences

“These coherent sets concern the world not as it currently is, but rather as it is in the process of becoming. They concern not the world as we find it, but rather the world as we may form it.”

were changed to:

“These coherent sets concern not the world as we find it, but rather the world as we may form it.”

Chapter 3, *Decision Science*, eighth paragraph, first footnote

Changed “battalion” to “company” in all (2 occurrences).

Changed “raw recruits” to “poorly-trained, unseasoned soldiers” in the third sentence.

Changed “raw recruits” to “these soldiers” and “highly trained and seasoned” to “highly-trained, seasoned soldiers” in the fourth sentence.

Chapter 3, *Decision Science*, last paragraph

Changed “expected net present value¹¹” to “current certainty equivalent¹¹” in the third sentence (2 occurrences).

“¹¹ Expected net present value is a common measure of the current value of uncertain future cash flows. More beautiful measures use a risk-preference function rather than the expected value function to reduce uncertain to certain cash flows and a yield-curve rather than a single interest rate to discount future cash flows.”

was changed to:

“¹¹ A certainty equivalent is a measure of uncertain cash flows that considers the decider’s risk preferences. Consider a bet involving an even chance of winning \$1,000,200 or losing \$1,000,000. A risk-neutral decider would value this bet at \$100, which is the expected value of this bet ($0.5 * \$1,000,200 - 0.5 * \$1,000,000$). A risk-avoiding decider in this situation would value this bet at less than \$100. A risk-seeking decider in this situation would value it at more than \$100.”

Chapter 3, *The Elephant in the Room*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Inserted the following paragraphs:

“All living beings naturally seek to order their bodies and environments to suit their needs. They do so by taking order into their environment and by casting disorder from it. For the world as a whole, the amount of order decreases over time. Hence, the source of order that makes life as we know it possible is the order at the beginning of the world. The odds against our world being as ordered as it appears to have been in the beginning are in the realm that mathematicians consider to be practically infinite.¹⁷”

“From a theistic view, we were lucky to have been born into a world created to be conducive to life. From an atheistic view, we were extremely lucky to have been born into a world conducive to life. From the multiple-frame view, we may never know for certain whether our world was created, one of a practically infinite number of accidental worlds, or something else. However, we can know with great certainty that we ought to pay for the privilege of being born into a world conducive to living our life well by paying forward the debt we owe to the living beings that made possible living our life well. We best do so by deciding well.”

“¹⁷ In a lecture given to Oxford University’s Newton Institute on November 7th, 2006 mathematician Roger Penrose estimated the odds against our universe being as ordered as it appears to have been at the big bang to be at least ten-to-the-ten-to-the-one-hundred-and-twenty-third power to one against. A video of this lecture is available online at <http://www.newton.ac.uk/webseminars/pg+ws/2005/gmr/gmrw04/1107/penrose/index.html> (22 December 2012).”

Chapter 3, The Elephant in the Room, new third paragraph

Changed “invariant” to “invariant **ends**” in the first sentence.

Chapter 4, Refining Everyday Thinking, section

Removed the Venn diagram and references to the Venn diagram.

Chapter 4, *Recursivity*, second paragraph, fourth and fifth sentences

“From the **Copenhagen** view of **physics**, quantum mechanics is the lowest level of abstraction **that we can imagine**. Searching for models that explain **causation** on the level of quantum mechanics **on a lower level wastes resources**.”

were changed to:

“From the view of **people who believe that** quantum mechanics is the lowest level of abstraction, **searching for models that explain the behavior of objects** on the level of quantum mechanics is foolish.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 4, *Academic Fields*, fourth paragraph, last two sentences

“For example, we would not exclude consciousness from the study of quantum mechanics, hence would see more clearly such things as the conflict between the absolute time of quantum mechanics (entangled states of the world) and the relativistic time of Einstein’s theory of invariance. The true sciences would include mathematics as the science of patterns.⁴”

“⁴ For more about mathematics as the science of patterns, see Appendix B.”

were changed to:

“For example, we would not exclude positive-sum game theory from biological evolution.”

Chapter 4, *Academic Fields*, last paragraph

Changed “endless” to “self-similar, self-referential, multiple-frame” in the first sentence.

Chapter 4, *Refining Invariant Science*, last paragraph, first sentence

Added the footnote:

“⁴ For mathematics to be a basis of a self-referential process of refining everyday thinking, mathematics must be a part of this process. From the multiple-frame view, the true sciences would include mathematics as the science of patterns. For more about this, see Appendix A.”

Chapter 4, *Refining Deciding Well*, title

Changed title to “*Refining Finding Problems to Solve*.”

Chapter 4, *Modern Policy Mistakes*, third paragraph

Changed “one of the greatest advances in human history” to “this great advance” in the last sentence.

Chapter 5, *A Sovereign Story for Deciding Well*, last paragraph, footnote

Changed “fabric of civilization” to “civilization” in the second sentence.

Chapter 5, *Pursue Invariant, not Temporal Order*, entire subsection

Changed “invariant” to “timeless” in all (3 occurrences).

Chapter 5, *Pursue Invariant, not Temporal Order*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**fabric of** civilization” to “civilization” in the second sentence.

Chapter 5, Good Policies, first paragraph, footnote

Changed “(e.g., **expert systems**, fractal geometry, **and inexpensive information processing**)” to “, e.g., fractal geometry,” in the second sentence.

Changed “do so” to “**invest in inventing means of doing** so” in the third sentence.

Chapter 5, Civil Faith, first paragraph

Changed “**invariant** liberalism” back to “**timeless** liberalism” in all (2 occurrences).

Changed “may its” to “may **call** its” in the second sentence.

Chapter 6, Worldly Benefits of Detachment, last paragraph

Changed “consciousness and **our**” to “**our** consciousness and” in the third sentence.

Chapter 6, Einstein's Twin Warnings, entire subsection

Promoted this subsection to a section.

Chapter 6, A Common Timeless End, last paragraph, last three sentences

“From the multiple-frame view, we **only need to choose between living well and linking well when we lack the resources to pursue both. Pursuing the timeless end of deciding well provides us with the resources to pursue both. We** best settle this conflict by having these beliefs compete in the marketplace of ideas for helping us decide well.”

were changed to:

“From the multiple-frame view, we best settle this conflict by having these beliefs compete in the marketplace of ideas for helping us decide well.”

Chapter 7, title quote, footnote (heading reference)

Changed “**by the courtesy name**” to “**as**” in the last sentence.

Chapter 7, An Extraordinary Anomaly, second paragraph

Changed “**fail to address our ignorance rationally, and so act irrationally**” to “act **unreasonably**” in the last sentence.

Chapter 7, An Extraordinary Anomaly, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “invariant values and” to “how well they ring true with all that we currently know about pursuing the timeless end of deciding well and to judge” in the first sentence.

Chapter 7, *OODA Loop Analysis*, last paragraph

Changed “” by” to “.” It included purposely” in the second sentence.

Added “in Saddam Hussein” at the end of the new third sentence.

Changed “Commandant General” by” to “Commandant” in the new fourth sentence.

Chapter 7, *Boyd's Grand Strategy*, last paragraph

Changed “biological” to “modern biological” in the first sentence.

Chapter 7, *Boyd's Grand Strategy*, last paragraph, last sentence

“They are things that we invent rather than discover.¹⁴”

¹⁴ Boyd saw patterns in the way we compete to live well. He wanted to explain these patterns using a decision-cycle model that included learning-by-doing. Regrettably, he based his model on modern interpretations of biological evolution, quantum mechanics, and Gödel’s incompleteness theorems. We see the resulting sophistry most clearly in his essay *Destruction and Creation*. From the multiple-frame view, indispensability in deciding well makes intellectual tools something we discover rather than invent. Like mathematics and logic, the reason that binds the boundless factors of deciding well together into a coherent whole appears to be indispensable in deciding well. As we shall see in the next chapter, we can never prove formally that we have found the best means of deciding well. Hence, we can never prove indispensability in deciding well. However, we can seek to disprove experimentally that the tools that ring truest with all that we currently know about deciding well are indispensable in deciding well by acting as if these tools are indispensable in deciding well.”

was changed to:

“¹⁴”

¹⁴ Boyd saw patterns in the way we compete to live well. He wanted to explain these patterns using a decision-cycle model that included learning-by-doing. Regrettably, he based his model on modern interpretations of biological evolution, quantum mechanics, and Gödel’s incompleteness theorems. We see the resulting sophistry most clearly in his essay *Destruction and Creation*. From the multiple-frame view, the reason that binds the boundless factors of deciding well together into a coherent whole appears to be indispensable in deciding well as logic and mathematics are.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 7, *The Grandest Possible*, first paragraph

Changed “grander, nobler” to “grander” in the second sentence.

Chapter 7, *The Scope of Biological Evolution*, first and second paragraphs

“From the view of modern biology, living beings cooperate well in order to compete well for resources useful in living well. Those living beings who *always* seek to cooperate before they seek to compete, *to look for win–win solutions to resource problems before they seek to compete over resources*, are anomalies. Our national goal of improving our fitness to cope with and shape our environment is superior to our grand strategy.

“From the multiple-frame view, living beings also compete *well* in order to cooperate *well* in living well. Those living beings that seek to compete over resources before they seek to cooperate in living well are the special case of beings that have not yet developed the wisdom to do otherwise. Our national goal is the grand strategy of deciding well using the multiple-frame approach to deciding well. *Further, recent discoveries show us that what happens to us may change not only how our genes work, but also how our descendants’ genes work. The line between genetic and cultural evolution is not distinct as most modern evolutionary biologists would have us believe.* As intelligent beings bound to live well in the flow of time, we ought to describe the world in ways that are most useful to intelligent beings bound to live well in the flow of time. We ought to take a boundless view of biological evolution.”

were changed to:

“From the view of modern biology, living beings cooperate in order to compete well for resources useful in living well. Those living beings who always seek to cooperate before they seek to compete are anomalies. Our national goal of improving our fitness to cope with and shape our environment is superior to our grand strategy. *We distinguish between biological and cultural evolution.*

“From the multiple-frame view, living beings *not only cooperate in order to compete well for resources useful in living well, but also* compete in order to cooperate in living well. Those living beings that seek to compete before they seek to cooperate are the special case of beings that have not yet developed the wisdom to do otherwise. Our national goal is the grand strategy of deciding well using the multiple-frame approach to deciding well. *Our genetics and culture coevolve.*¹⁷

“As intelligent beings bound to live well in the flow of time, we ought to describe the world in ways that are most useful to intelligent beings bound to live well in the flow of time. We ought to take a boundless view of biological evolution.”

¹⁷ *Recent discoveries show us that what happens to us may change not only how our genes work, but also how our descendants’ genes work. The line between genetic and*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

cultural evolution is not distinct as most modern evolutionary biologists would have us believe.”

Chapter 7, The Scope of Biological Evolution, last two paragraphs

“All living beings naturally seek to order their bodies and environments to suit their needs. They do so by taking order into their environment and by discarding disorder from it. For the world as a whole, the amount of order decreases over time. Hence, the source of order that makes life as we know it possible is the order at the beginning of the world. The odds against our world being as ordered as it appears to have been in the beginning are in the realm that mathematicians consider to be practically infinite.¹⁷”

“From a theistic view, we were lucky to have been born into a world created to be conducive to life. From an atheistic view, we were extremely lucky to have been born into a world conducive to life. From the multiple-frame view, we may never know for certain whether our world was created, one of a practically infinite number of accidental worlds, or something else. However, we can know with great certainty that we ought to pay for the privilege of being born into a world conducive to living our life well by paying forward the debt we owe to the living beings that made possible living our life well. We best do so by pursuing the transcendental end of zero public entropy, which calls for us to pursue the boundless factors of deciding well.”

“¹⁷ Mathematician Roger Penrose estimated the odds against our universe being as ordered as it appears to have been at the big bang to be at least ten-to-the-ten-to-the-one-hundred-and-twenty-third power to one against. He made this estimate in a lecture titled “Before the Big Bang? A New Perspective on the Weyl Curvature Hypothesis” at Oxford University’s Newton Institute on November 7th, 2006. A video of this lecture is available online at <http://www.newton.ac.uk/webseminars/pg+ws/2005/gmr/gmrw04/1107/penrose/index.html> (22 December 2012).”

were deleted.

Chapter 8, Beautiful Reason, entire chapter

Changed “frames” to “models” in all (9 occurrences).

Chapter 8, Beautiful Reason, title quote, end

“So if you look back at the history of the beginning of this century you’ll see papers by logicians studying the foundations of mathematics in which they had programming languages. Now you look back and you say this is clearly a programming language! If you look at Turing’s work, you see, of course, there’s a machine language. If you look at papers by Alonzo Church, you see the lambda calculus, which is a functional programming language. If you look at Gödel’s original paper, you see what to me looks like LISP. It’s very close to LISP. It begs to be rewritten in LISP.” — *Gregory Chaitin*”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹ Introductory remarks of a lecture given given by Gregory Chaitin at the Carnegie Melon University’s School of Computer Science on March 2, 2000. A video of this lecture is available online at <<http://www.youtube.com/watch?v=HLPO-RTFU2o>> (30 July 2012).”

was changed to:

““The safest general characterization of the European philosophical tradition is that it consists of a series of footnotes to Plato. I do not mean the systematic scheme of thought which scholars have doubtfully extracted from his writings. I allude to the wealth of general ideas scattered through them.” — *Alfred North Whitehead*¹

“¹ Whitehead, A. N. *Process and Reality* (New York: Free Press, 1979), p. 39.”

Chapter 8, Beautiful Reason, fourth paragraph

Changed “Socrates” to “**Plato’s** Socrates” in the last sentence.

Chapter 8, Beautiful Reason, fourth paragraph, footnote

“² Reason, so conceived, does not consider the unity of the virtues. In Plato’s early-to-middle transitional dialogue *Protagoras*, Socrates argues for the unity of virtue.”

was deleted.

Chapter 8, Beautiful Reason, fifth paragraph

Changed “but also the models” to “but also the **coherent sets of** models” in the second sentence.

Changed “**coherent** sets of models” to “sets of models” in the last sentence.

Chapter 8, Beautiful Reason, sixth paragraph

Re-added a footnote (now including the title of the lecture) which was deleted from the end of the first sentence on July 30, 2012:

“¹ The inspiration for this thought experiment was an observation that mathematician Gregory Chaitin made in the introductory remarks of a lecture titled “A Century of Controversy Over the Foundations of Mathematics” that he gave at the Carnegie Melon University’s School of Computer Science on March 2, 2000: “So if you look back at the history of the beginning of this century you’ll see papers by logicians studying the foundations of mathematics in which they had programming languages. Now you look back and you say this is clearly a programming language! If you look at Turing’s work, you see, of course, there’s a machine language. If you look at papers by Alonzo Church, you see the lambda calculus, which is a functional programming language. If you look at

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Gödel's original paper, you see what to me looks like LISP. It's very close to LISP. It begs to be rewritten in LISP." A video of this lecture is available online at <http://www.youtube.com/watch?v=HLPO-RTFU2o> (30 March 2013)."

Changed "to prove" to "to prove **formally**" in the fourth sentence.

Changed "finesse **appears to be**" to "**genetic** finesse **is**" in the last sentence of the last footnote.

Chapter 8, Beautiful Reason, last paragraph, second sentence

"From the **invariant** view of believing well, **which is the view of believing well ever more wisely**, we ought to choose the one that rings the truest with all that we currently know about believing well ever more wisely."

was changed to:

"From the **multiple-frame** view of believing well, we ought to choose the one that rings the truest with all that we currently know about believing well ever more wisely."

Chapter 8, Complete Reason, first paragraph, first footnote, first five sentences

"Consider the following claims. **First**, for any set of rules for pursuing the Truth, we will either discover or never discover the Truth. **Second**, if we discover the Truth, we prove that the set of rules is complete. **Third**, if we never discover the Truth, we never prove that the set of rules is complete. **Fourth**, pursuing the Truth is an endless process."

were changed to:

"Consider the following claims: (1) for any set of rules for pursuing the Truth, we will either discover or never discover the Truth; (2) if we discover the Truth, we prove that the set of rules is complete; (3) if we never discover the Truth, we never prove that the set of rules is complete; and (4) pursuing the Truth is an endless process."

Chapter 8, Complete Reason, first paragraph, second footnote

Changed "*science includes all of the interwoven pursuits of the*" to "*it includes pursuing all*" in the last sentence.

Chapter 8, Summary, entire section

Summary

The spirit of our age concerns breaking unwieldy wholes into parts in order to solve problems better. A major danger in breaking wholes into parts is forgetting to consider the infinitely greater whole, which is important not only in philosophy (the induction problem) and in physics (the entanglement and observer problems), but also in

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

economics (the learning problem). Although complete knowledge of this whole will remain forever beyond our grasp, we must not pass over it in silence. Expanding the scope of the problems we face helps us find better problems to solve. When we expand the scope of these problems to the limits of imagination, a structure of values independent of beliefs and circumstances emerges. Understanding the process by which we best progress toward these invariant ends can help us progress ever more readily.”

was replaced by:

“**Eudaemonia**

Pursuing the timeless end of deciding well using the multiple-frame approach to deciding well involves building superrational frameworks for supporting our current beliefs. By themselves, these frameworks are useless. We make them useful by adding what we currently believe we know about pursuing the boundless factors of deciding well to them. Missing from this structure is a means of understanding constraints on our ability to receive and process information unconsciously. To decide well, we need to consider these constraints. Both as humans and as people living with humans, we need to consider the human condition.

“We may think of our minds (psyches/souls) as having parts that provide us with information. We may call these parts *daemons* after the term that computer scientists use to describe processes that run in the background. Some of our daemons use processes of which we can be fully aware, such as consciously formed habits. Others use processes of which we can never be aware, such as how we turn physical contact with airborne molecules into signals our minds perceive as smells. Between these two extremes are a broad range of daemons that use processes of which we can learn to be more aware, such as why things ring true or false to us.

“We ought to trust the information we receive from our daemons only to the degree that this information rings true with all else that we currently know about pursuing the timeless end of deciding well. If the information our daemons provide us conflicts with our reason, we ought to trust our reason to determine whether this information is useful in deciding well.

“Deciding well calls for us to govern our minds well, which in turn calls for us to decide well. We may call the timeless end of governing our minds well *Eudaemonia*.⁶ Including Eudaemonia in our set of boundless factors of deciding well provides us with a means of thinking about the parts of our minds that process information unconsciously.⁷

“Today, we are experiencing an unprecedented increase in our capacity for processing information outside of ourselves. Increasing this capacity tends to increase the pace of change, which in turn increases our need for a sense of beauty based on pursuing the boundless factors of deciding well. In perfecting this sense of beauty, we learn ever more about governing our minds well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“⁶ Modern translations of eudaemonia include happiness, well-being, and flourishing. All of these concern living well rather than governing our minds well. Eudaemonia literally means having a good attending or indwelling spirit. Following this literal meaning, the timeless end of governing our minds well means having a perfectly good attending or indwelling spirit, a spirit ruled by Reason. Given our ignorance of Wisdom, the pursuits of the timeless end of living well (Happiness) and of governing our minds well (Eudaemonia), though interwoven, are not one and the same.”

“⁷ Plato’s Socrates teaches us that when we find ugliness in reasoning, we ought to seek to find the source of this ugliness. When we read in *The Republic* that political leaders ought to lie about the true nature of their eugenics program and to exile masses of people, we ought to look for what mistakes in reasoning led to these ugly prescriptions. From the bounded vision of governing ourselves well that Plato put forth in *The Republic*, parts of the human mind are like parts of the polis (city-state). In an ideal state, all people work together for the good of the state. In an ideal human mind, all parts work together for the good of the human. From the boundless view of governing ourselves well put forth in this work, parts of the human mind are like parts of the whole of life. In an ideal state, all people work together in deciding well. In an ideal mind, all parts work together in deciding well. *Plato’s bounded view of politics conflicts with his boundless (hydra-lion-human) view of reason.*”

Appendix A, entire appendix

Made significant changes, including removing all analysis relating to apeirogons. The net result is a version that is a page shorter and more to the point.

Appendix B, *Folding in Production Processes*, first paragraph

Changed “assembly” to “**molding**, assembly, **packaging**” in the first sentence.

Appendix B, *Smoothing Flows*, first paragraph, last sentence

“For those who understand the system, the smoothing process is more impressive than this smooth flow.”

was deleted.

Appendix B, *Smoothing Flows*, last paragraph, end

Added the paragraph:

“For those who understand the system, the smoothing process is more impressive than this smooth flow.”

Appendix B, *Looking Forward*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “The” to “Note that the” in the first sentence.

Changed “ever” to “even” in the last sentence.

Demoted this subsection to the end of the first footnote in the next section.

Appendix B, *Rapid Tool Setting*, first paragraph

Changed “simply removes one” to “removes one such” in the fifth sentence.

Appendix B, Less is More, first paragraph

Changed “solve” to “address” in the third sentence.

Changed “common sense” to “reasonable” in the fifth sentence.

Changes in Version 2013.04.19

Chapter 1, Timeless Reason, second paragraph

Changed “marginalist” to “modern” in the second sentence.

Chapter 1, Timeless Beauty, first paragraph

Changed “this timeless concept of reason” to “the timeless concept of reason put forth in this work” in the first sentence.

Chapter 1, Timeless Beauty, third paragraph

Changed “library” to “room” in the first sentence.

Chapter 1, Timeless Beauty, eighth paragraph

Changed “dynamism of the oculus” to “dynamism of the image above the oculus” in the first sentence.

Chapter 1, Timeless Beauty, ninth paragraph

Changed “A. Square” to “Flatlander A. Square” in the fifth sentence.

Chapter 1, Timeless Beauty, last paragraph

Changed “symbol of renaissance” to “timeless symbol of renaissance” and “symbol of the Renaissance” to “modern symbol of the Renaissance” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, Timeless Beauty, entire section

Demoted this section to an appendix (C) titled “**Renaissance Art.**” Introduced this section with quotes from Protagoras and Plato's Socrates.

Chapter 1, Overview, entire section

“**Overview**

The spirit of our age concerns breaking unwieldy wholes into parts in order to solve problems better. A major danger in breaking wholes into parts is forgetting to consider the infinitely greater whole, which is important not only in philosophy (the induction problem) and physics (the entanglement problem), but also in economics (the learning problem). Although complete knowledge of this whole will remain forever beyond our grasp, we must not pass over it in silence. Expanding the scope of the problems we face helps us find better problems to solve. When we expand the scope of these problems to the limits of imagination, a structure of values independent of beliefs and circumstances emerges. Understanding the process by which we best progress toward these invariant ends can help us progress ever more readily.”

was deleted.

Chapter 3, Pursuing the Ring of Truth, last paragraph

Changed “**Beauty is the quality of objects whose contemplation**” to “**Contemplating truly beautiful things**” in the first sentence.

Chapter 3, Pursuing the Ring of Truth, last paragraph, end

Added the following footnote:

“² **For more about the relation between beauty and enlightenment, see Appendix C.**”

Appendix C, last paragraph, end

Added the following sentence: “**Which is the better tool for helping us live well?**”

Changes in Version 2013.04.23

Chapter 3, *Public Entropy*, last two paragraphs

“Extending this prescription to **the whole of science**, we ought to want a set of partial descriptions of the world, each member of which contains instructions for how we ought to use it. These descriptions and instructions ought to be as simple as possible, but not

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

simpler; and the set of these descriptions and instructions ought to be as small as possible, but not smaller.⁸

“We can use the concept of public entropy to help us **see science not only as a source of partial descriptions of the world, but also as a means of linking these** partial descriptions into an ever more coherent whole that we can use to find ever better problems to solve.⁹ We can begin by using **this concept** to relate quantum mechanics to deciding well.”

were changed to:

“Extending this prescription to **our strategy for deciding well**, we ought to want a set of partial descriptions of the world, each member of which contains instructions for how we ought to use it.⁸ These descriptions and instructions ought to be as simple as possible, but not simpler; and the set of these descriptions and instructions ought to be as small as possible, but not smaller.

“We can use the concept of public entropy to help us link partial descriptions **of the world** into an ever more coherent whole that we can use to find ever better problems to solve.⁹ We can begin by using **it** to relate quantum mechanics to deciding well.”

Chapter 3, The Elephant in the Room, third paragraph

Changed “**invariant ends and** religious values” to “religious values **and boundless factors of deciding well**” in the first sentence

Changes in Version 2013.04.24

Preface, seventh paragraph

Changed “the” to “**natural (invariant) science, in** the” in the first sentence.

Chapter 4, *Academic Fields*, last paragraph

Changed “*invariant science*” to “**natural (invariant) science**” in the first sentence.

Chapter 4, Refining Invariant Science, title

Changed title to “Refining **Natural** Science.”

Chapter 4, Refining Natural Science, second paragraph

Changed “models we use to **explain deciding well**” to “**coherent sets of** models **that** we use to **find problems to solve**” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “models” to “sets of models” in the second sentence.

Changed “this set” to “these sets” in the third sentence.

Chapter 4, *Refining Finding Problems to Solve*, second paragraph, last footnote, second through fourth sentences

“Our needs for such things as nutrition and water emerge on the level of our physical bodies. Our needs for such things as affection and esteem emerge on the level of our minds. Our needs for such things as the longing to link with something infinitely greater than ourselves emerge on the level of our spirits.”

were deleted.

Chapter 4, *Modern Policy Mistakes*, fifth paragraph, second sentence

“Over time, these accidents pile up like blocks of ice in a near-freezing river.”

was changed to:

“These accidents are like blocks of ice in a near-freezing river.”

Chapter 4, *Testing Invariant Science*, title

Changed title to “Testing Natural Science.”

Chapter 4, *Testing Natural Science*, first paragraph

Changed “believing well” to “deciding well” in the second sentence.

Chapter 5, *Sovereignty*, first paragraph

Changed “, which we may also call governing ourselves well, ” to “ ” in the first sentence.

Chapter 5, *The Explicit Experiment*, second paragraph

Changed comma-delineated phrase to semicolon-delineated block quote in the fifth sentence.

Appendix A, *The Basis of Mathematics*, first paragraph, third and fourth sentences

“By definition, we can never achieve this timeless end. Hence, we can never prove formally that any tool for pursuing it is indispensable.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“**Because** we can never **know we have** achieved this end, we can never prove formally that any tool for pursuing it is indispensable.”

Changes in Version 2013.04.26

Preface, fifth paragraph

Changed “**a more complete concept of reason than rationality, a**” to “**a**” in the last sentence.

Preface, sixth paragraph

Changed “current concepts of reason” to “modern concept of reason **as rationality (the reason of geometry, mathematics, and logic)**” in the first sentence.

Chapter 5, *The Explicit Experiment*, third paragraph

Moved prepositional clause from the end to the beginning of the first sentence.

Changed “**his**” to “**this**” in the second sentence.

Chapter 6, *Heroic Death*, second paragraph, last two sentences

“The worst **promote an apocalyptic vision of the future buttressed by a romantic vision of the past. They** promise heaven on earth for all true believers who survive the final battle against evil.⁸”

“⁸ **Berman, Paul, *Terror and Liberalism* (New York: W. W. Norton & Company, 2003).**”

were changed to:

“The worst **promise** heaven on earth for all true believers who survive the final battle against evil.”

Chapter 7, *Boyd's Grand Strategy*, last paragraph, footnote, last sentence

“From the multiple-frame view, the reason that binds the boundless factors of deciding well together into a coherent whole appears to be indispensable in deciding well as logic and mathematics are.”

was deleted.

Chapter 7, The Scope of Biological Evolution, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “evolution” to “evolution, a view in which the inexhaustibility of knowledge plays a guiding role” in the last sentence.

Changes in Version 2013.04.29

Chapter 2, Timeless Tools for Living Well, first paragraph

Changed “multiple-frame approach to deciding well put forth in this work” to “multiple-frame approach” in the third sentence.

Chapter 2, Timeless Tools for Living Well, last paragraph

Changed “multiple-frame approach to deciding well” to “multiple-frame approach” in the last sentence.

Chapter 5, *A Sovereign Story for Deciding Well*, second paragraph

Changed “multiple-frame approach to deciding well” to “multiple-frame approach” in the first sentence.

Chapter 5, *Pursue Timeless, not Temporal Order*, first paragraph

Changed “multiple-frame approach to deciding well” to “multiple-frame approach” in the last sentence.

Chapter 5, *Civil Faith*, first paragraph

Changed “multiple-frame approach to governing well” to “multiple-frame approach” in the second sentence.

Chapter 7, *The Scope of Biological Evolution*, second paragraph

Changed “multiple-frame approach to deciding well” to “multiple-frame approach” in the third sentence.

Chapter 8, *Beautiful Reason*, last paragraph

Changed “multiple-frame view of believing well” to “multiple-frame view” in the second sentence.

Chapter 8, *Complete Reason*, first paragraph, last footnote

Changed “multiple-frame approach to believing well” to “multiple-frame approach” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, Eudaimonia, first paragraph

Changed “multiple-frame approach to deciding well” to “multiple-frame approach” in the first sentence.

Chapter 8, Eudaimonia, third paragraph

“We ought to trust the information we receive from our daemons only to the degree that this information rings true with all else that we currently know about pursuing the timeless end of deciding well. We ought to trust our reason. To trust our reason calls for us to trust the foundations of our reason, which in turn calls for us to trust the foundations of these foundations, which in turn calls for us to trust the foundations of these foundations, and so on to infinity. We best address this infinitely large problem by deciding well using the multiple-frame approach.”

was deleted.

Chapter 8, Eudaimonia, new third paragraph, first sentence

“Deciding well calls for us to govern our minds well, which in turn calls for us to decide well.”

was changed to:

“The multiple-frame approach to deciding well calls for us to reason well. At the end of Book IX of *The Republic*, Plato defined reason as the endless process of governing our minds well.⁶⁷”

⁶ For more about Plato’s boundless view of reason, see Appendix C. Regrettably, in Book II Plato also provided us with a bounded view of governing our minds well by comparing governing our minds well to governing ourselves well: In an ideal state, all citizens work together for the good of the state. In an ideal human mind, all parts work together for the good of the human. We ought to take the boundless view: In the ideal state, all citizens work together in deciding well. In the ideal human mind, all parts work together in deciding well.”

Chapter 8, Eudaimonia, new third paragraph, second footnote

⁷ Plato’s Socrates teaches us that when we find ugliness in reasoning, we ought to seek to find the source of this ugliness. When we read in *The Republic* that political leaders ought to lie about the true nature of their eugenics program and to exile masses of people, we ought to look for what mistakes in reasoning led to these ugly prescriptions. From the bounded vision of governing ourselves well that Plato put forth in *The Republic*, parts of the human mind are like parts of the polis (city-state). In an ideal state, all people work together for the good of the state. In an ideal human mind, all parts work together for the good of the human. From the boundless view of governing

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

ourselves well put forth in this work, parts of the human mind are like parts of the whole of life. In an ideal state, all people work together in deciding well. In an ideal mind, all parts work together in deciding well. *Plato's bounded view of politics conflicts with his boundless (hydra-lion-human) view of reason.*”

was deleted.”

Chapter 8, Eudaemonia, last paragraph

“Today, we are experiencing an unprecedented increase in our capacity for processing information outside of ourselves. Increasing this capacity tends to increase the pace of change, which in turn increases our need for a sense of beauty based on pursuing the boundless factors of deciding well. In perfecting this sense of beauty, we learn ever more about governing our minds well.”

was deleted.

Appendix C, last paragraph, second through last sentences

“The first is a symbol of refining **the pursuit of the timeless end of** deciding well (**Wisdom**) and the second is a symbol of a refinement of **classical knowledge** (the **techniques** of first-century BCE Roman engineer Vitruvius). **The first is a timeless symbol of renaissance and the second is a modern symbol of the Renaissance.** Which is the better **symbol** for helping us live well?”

were changed to:

“The first is a **timeless symbol of renaissance**, of refining deciding well. **The second is a modern symbol of the Renaissance**, of a refinement of the **knowledge** of first-century BCE Roman engineer Vitruvius. Which is the better **tool** for helping us live well?”

Changes in Version 2013.04.30

Entire document

Updated all website reference dates.

Chapter 2, *Tools for Pursuing Pleasure and Joy*, last paragraph, last five sentences

“**When we have too much yang, we pursue pleasure too much. When we have too much yin, we pursue joy too much.** When *yin* and *yang* are in balance, we pursue the virtuous circle of pleasure and joy. **From the Western tradition**, we need tools to help us know when our emotions and appetites overwhelm our **faculties in order to help us know when**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

we ought to abandon deliberation and decision rules for discipline. One solution to this problem is a list of warning signals: lust, gluttony, greed, sloth, wrath, envy, and pride.”

were changed to:

“When *yin* and *yang* are in balance, we pursue the virtuous circle of pleasure and joy.

“Regardless of whether we choose an active or a contemplative life, we need tools to help us know when our emotions and appetites overwhelm our ability to reason well. The Western tradition provides us with a list of warning signals: lust, gluttony, greed, sloth, wrath, envy, and pride.”

Chapter 3, *Decision Science*, seventh paragraph

Changed “existence” to “the world” in all (4 occurrences).

Changed “find it” to “currently find it” in the last sentence.

Chapter 3, *Decision Science*, eighth paragraph, first footnote, fourth sentence

“This belief rests on the belief that we ought to test the most beautiful of competing beliefs.”

was deleted.

Chapter 3, *Decision Science*, eighth paragraph, second footnote, last two sentences

“A risk-avoiding decider in this situation would value this bet at less than \$100. A risk-seeking decider in this situation would value it at more than \$100.”

were changed to:

“A risk-avoiding decider would value this bet at less than \$100 and a risk-seeking one would value it at more than \$100.”

Chapter 3, *Decision Science*, eighth paragraph, first footnote, end

Added the sentence: “It rings truer with all that we currently believe we know about deciding well.”

Chapter 3, *Decision Science*, last paragraph, last two sentences

“The better solution to the problem of whether to invest in this research program is the decision science solution. It rings true with more of what we currently believe we know and do not yet know about the world.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“The better **formal** problem **to solve** is the decision science **problem**. It rings truer with **all that** we currently believe we know **about deciding well**.”

Chapter 3, The Elephant in the Room, last three paragraphs

“One of the most beautiful things to emerge from deciding well is the coincidence of religious values and boundless factors of deciding well. The essential atheistic explanation of this coincidence is simple and straightforward. We evolved to have a religious need to become a part of something infinitely greater than ourselves. We satisfy this need by deciding well. We collectively refine our means of deciding well by deciding well over time. In the fullness of time, we discover and use the multiple-frame approach to deciding well.

“The essential theistic explanation of this coincidence is as simple and straightforward. The Creator created what we call the laws of nature. These laws include the need for life to flourish. We flourish by deciding well. We collectively refine our means of deciding well by deciding well over time. In the fullness of time, we discover and use the multiple-frame approach to deciding well.

“Although these two essential explanations differ in their assumptions, they share the same means. Regardless of what core set of currently unfalsified beliefs, what personal faith, we choose to help us find the best problem to solve, the essential process of deciding well is the same for all of us. We are all as blind men seeking to know an infinitely large elephant.”

were appended to the end of last sentence of the preceding paragraph and changed to:

“**using the multiple-frame approach, which calls for us to recognize that we are all as blind men seeking to know an infinitely large elephant.**”

Chapter 7, The Scope of Biological Evolution, last paragraph

Changed “evolution, a view in which the inexhaustibility of knowledge plays a guiding role ” back to “evolution” in the last sentence.

Chapter 8, Beautiful Reason, sixth paragraph, second footnote

Changed “is” to “**may be**” in the last sentence.

Chapter 8, Eudaemonia, last paragraph, first footnote

Changed “in Book II Plato also provided us with a bounded view of governing our minds well **by comparing governing our minds well to governing ourselves well**” to “**by likening governing our minds well to governing ourselves well** in Book II of *The*

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Republic, Plato also provided us with a bounded view of governing our minds well” in the second sentence.

Changed “We” to “As we have seen, we” in the last sentence.

Appendix A, The Basis of Mathematics, last two paragraphs

“We can apply this reasoning to mathematics as a whole. **Mathematics is the study of patterns. We use mathematics as a tool for pursuing the timeless end of deciding well.** To prove that mathematics is indispensable in **pursuing this timeless end**, we seek to disprove the proposition that there exist some patterns that are indispensable in **pursuing it**. We do so by acting as if some patterns are indispensable.

“We base mathematics on the reason of **the self-referential, self-similar, multiple-frame process of deciding well. We presume that the most useful tools in deciding well are the most likely to be indispensable in deciding well.** When confronted with more than one solution to a mathematical problem, we choose the solution that appears to be most useful in deciding well. In doing so, we seek to disprove it is most useful **in deciding well.**”

were changed to:

“We can apply this reasoning to mathematics as a whole. To prove that mathematics is indispensable in **deciding well**, we seek to disprove the proposition that there exist some patterns that are indispensable in **deciding well**. We do so by acting as if some patterns are indispensable **in deciding well**.

“We base mathematics on the reason of deciding well. When confronted with more than one solution to a mathematical problem, we choose the solution that appears to be most useful in deciding well. In doing so, we seek to disprove it is most useful in deciding well. **We presume that the most useful tools in deciding well are the most likely to be indispensable in deciding well.**”

Appendix C, fourth paragraph, fifth sentence

Added the footnote:

“² **A high resolution image of the entire ceiling is available online at <http://upload.wikimedia.org/wikipedia/commons/9/90/Raphael_-_Ceiling_of_the_Selling_Room.jpg> (30 April 2013).**”

Appendix C, seventh paragraph

Changed “self-similar **means of refining reason**” to “self-similarity” in the second to last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, ninth paragraph

Changed “**suddenly** inspired” to “inspired” in the last sentence.

Appendix C, last paragraph

Changed “refining **deciding well**” to “**endlessly** refining **everyday thinking**” in the first sentence.

Appended paragraph to preceding paragraph.

Changes in Version 2013.05.02

Chapter 2, *Pleasure and Pain*, fifth paragraph

Changed “**ecstasy** (complete pleasure)” to “complete pleasure (**ecstasy**)” in the last sentence.

Chapter 3, *Three Approaches to Policy*, last paragraph

Changed “**wisdom that surpasses current wisdom**” to “**the timeless end of deciding well (Wisdom)**” in the last sentence.

Chapter 3, *Public Order*, last paragraph

Changed “**an** timeless” to “a timeless” in the second sentence.

Chapter 4, *Recursivity*, first paragraph

Changed “undermines” to “**eventually** undermines” in the fifth sentence.

Deleted the last sentence: “**The models we use to describe the behavior of ants do not change what ants do, but the models we use to describe our behavior tend to change what we do.**”

Chapter 4, *Recursivity*, second paragraph

“**The two-way relation between the world and the descriptions that we use to guide our actions gives rise to a wide variety of phenomena, which range from speculative bubbles to complex systems of human organizations. We can think about the cause of these phenomena as the interplay of two tendencies of the descriptions that we use to guide our actions. The first is their tendency to become more popular, which, in part, is due to the inexhaustibility of knowledge. The second is their tendency to undermine the conditions on which we base them. Repeatedly using these descriptions to guide our**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

actions without considering how our actions change reality tends to lead us ever further away from the ideal means of deciding well.”

was reduced to a footnote to the first paragraph.

Chapter 5, Civil Faith, title

Changed title to “**Timeless Liberalism.**”

Chapter 8, Eudaemonia, last paragraph

Changed “the parts” to “**how best to govern** the parts” in the last sentence.

Changed “**take** the **boundless view**” to “**decide well using** the **multiple-frame approach**” in the last sentence of the first footnote.

Changed “**ignorance**” to “**imperfect knowledge**” in the last sentence of the second footnote.

Appendix A, The Big Picture, second paragraph

Changed “**submit an answer**” to “**answer this question**” in the first sentence.

Appendix C, fourth paragraph, last footnote

“**Taken together with the octagonal oculus, the pursuits of Beauty, Truth, Justice, and Wholeness form a Latin cross with the long member representing the factor in mind. We can clearly see this cross in the horizontal and vertical rays emanating from the symbol of the Holy Ghost (encircled dove) in the fresco below the theology circle. Looking at this fresco, the factor we have in mind is Wholeness. A high-resolution image of this fresco is available online at**
<http://upload.wikimedia.org/wikipedia/commons/1/19/Raphael_-_Disputation_of_the_Holy_Sacrament.jpg> (30 April 2013).”

was deleted.

Appendix C, fourth paragraph

Changed “**hold**” to “**push**” and “**tether**” to “**pull**” in the last sentence.

Moved the first footnote to the end of the last sentence.

Appendix C, fifth paragraph

Changed “**holding**” to “**pushing**” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**tethering**” to “**pulling**” in the fourth sentence.

Changed “fire” to “**fire, halfway between poetry and theology,**” in the fifth sentence.

Changed “**concerns**” to “**symbolizes**” and “**our current**” to “**passionately held**” in the sixth sentence.

Changed “**pursuing** Wisdom” to “Wisdom” in the last sentence.

Moved the last sentence to the end of the footnote.

Appendix C, last paragraph, footnote

“Raphael completed the philosophy fresco without the figure of Heraclitus. Some art historians believe that he added it as a symbol of inspired genius in response to seeing Michelangelo’s **recently-completed** figure of Jeremiah on the ceiling of the Sistine Chapel. The obvious reason that Raphael did not add this **self-similar** symbol of refining **reason at the same time** is that he did not imagine it. An alternative reason is **that there was no place for it**. Replacing the putti above the oculus in the ceiling would have **better integrated the fresco dedicated to philosophy**. However, it would have harmed **the integration of the room as a whole by damaging** the relation between the ceiling and the fresco dedicated to theology, **particularly the common personification of natural phenomena that we do not yet understand.**”

was changed to:

“Raphael completed the philosophy fresco without the figure of Heraclitus. Some art historians believe that he added it as a symbol of inspired genius in response to seeing Michelangelo’s figure of Jeremiah on the ceiling of the Sistine Chapel. The obvious reason that Raphael did not add this symbol of refining everyday thinking is that he did not imagine it. An alternative reason is **making room for it would have harmed the integration of the room as a whole**. For example, replacing the papal symbol and putti above the oculus in the ceiling would have harmed the relation between the ceiling and the fresco dedicated to theology. **Arguably, this is but one of many compromises made in flattening a universal story of enlightenment into this walk-in Christian mandala.**”

Changes in Version 2013.05.04

Chapter 1, Timeless Reason, last paragraph

Changed “model” to “**multiple-frame** model” in the second sentence.

Chapter 3, *Decision Science*, seventh paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “coherent sets” to “multiple-frame models” in the last sentence.

Chapter 4, Refining Natural Science, second paragraph

“Refining the process of refining everyday thinking also calls for refining the coherent sets of models that we use to find problems to solve.⁵ We refine these sets by weeding out all models that are not clear, concise, and *beautiful*. We further refine these sets by weeding out models that fail to meet our (evolving) standards for helping us find problems to solve. The rub is that we do not know exactly what it is that we ought to seek.”

was changed to:

“Refining the process of refining everyday thinking also calls for refining the multiple-frame models that we use to find problems to solve.⁵ We refine these multiple-frame models by weeding out all single-frame models that are not clear, concise, and *beautiful*. We further refine these multiple-frame models by weeding out single-frame models that fail to meet our (evolving) standards for helping us find problems to solve. The rub is that we do not know exactly what it is that we ought to seek.”

Chapter 8, Beautiful Reason, fifth paragraph

“When we pursue the timeless end of deciding well by pursuing the boundless factors of deciding well, we seek not only to find the best solution to given problems, but also the best problems to solve. Reason concerns not only the models we use to solve given problems, but also the coherent sets of models that we use to find problems to solve. Excellence in finding problems to solve calls for models that are ambiguous with respect to the timeless ends of all boundless factors of deciding well and the means of pursuing these ends. We may call the set of rules that we use to relate beliefs well within these sets of models *the rules of Reason*.”

was changed to:

“When we pursue the timeless end of deciding well by pursuing the boundless factors of deciding well, we seek not only to find the best solution to given problems, but also the best problems to solve. Reason concerns not only the single-frame models we use to solve given problems, but also the multiple-frame models that we use to find problems to solve. Excellence in finding problems to solve calls for (coherent sets of) single-frame models that are ambiguous with respect to the timeless ends of all boundless factors of deciding well and the means of pursuing these ends. We may call the set of rules that we use to relate beliefs well within this approach to deciding well *the rules of Reason*.”

Appendix C, fifth paragraph

Changed “too passionately held” to “fervent” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2013.05.07

Preface, fifth paragraph, first sentence

Added the sentence:

“Given our imperfect knowledge of how to pursue the timeless end of deciding well, the pursuits of the timeless end of deciding well and the timeless end of believing well, though interwoven, are not one and the same.”

Chapter 1, *Steps for Building Multiple-Frame Models*, third paragraph

Changed “problems to solve in deciding well that involve profound changes to” to “holes in” in the first sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, fourth paragraph

“Because we lack the knowledge of how to pursue these two ends perfectly, it useful for us to think of them as separate pursuits, each subject to its own set of problems.”

was deleted.

Chapter 3, *Contemplating the Way Forward*, third paragraph

Changed “approximates” to “approximations” in the fifth sentence.

Chapter 3, *Contemplating the Way Forward*, fourth paragraph

Changed “approximations” to “approximates” in all (2 occurrences).

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph, footnote

Changed “short” to “other words” in the second sentence.

Changed “self-referential” to “(self-referential)” in the fourth sentence.

Chapter 4, *Academic Fields*, fourth paragraph

Changed “positive-sum game theory” to “natural (invariant) game theory” in the last sentence.

“^s For more about natural game theory and biological evolution, see the seventh chapter.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 6, *Heroic Death*, second paragraph

Changed “**the** final battle” to “**a** final battle” in the last sentence.

Appendix C, fifth paragraph, footnote, last sentence

“**Given our imperfect knowledge of Wisdom, the pursuits of Wholeness and the Truth, though interwoven, are not one and the same.**”

was deleted.

Changes in Version 2013.05.11

The following edits were prompted by comments made by V. Wellman:

Preface, third paragraph

Changed “**the temporal and the timeless**” to “**events and processes**” in the second sentence.

Changed “**timeless model of deciding well, a model**” to “model” in the sixth sentence.

Changed “cycle” to “**cycle on any given level of abstraction**” in the seventh sentence.

Changed “temporal” to “**temporally-bounded**” in the eighth sentence.

Preface, fourth paragraph, last two sentences

“These constraints concern all steps in **the** decision cycle. **We overcome these constraints by learning ever more about deciding well.**”

were changed to:

“These constraints concern all **three** steps in **this** decision cycle: (1) **overcoming constraints in finding problems to solve helps us become ever more *effective***; (2) **overcoming constraints in solving given problems helps us become ever more *efficient***, and (3) **overcoming constraints in learning from experience helps us become ever *wiser* (ever more effective and efficient)**. This dynamic concept of economics, which we may call ***the economics of deciding well***, concerns not only efficiency, but also effectiveness and wisdom.”

Preface, third paragraph, end

Added the following paragraphs:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In taking this boundless approach to deciding well, we use many bounded models of the world to help us evaluate solutions to given problems. In bounding our models of the world, we exclude what happens outside the bounds of our models from our models. In effect, we presume to know more than we can ever possibly know in order to build logically consistent models of the world that help us predict well within given domains.

“In taking this boundless approach, we also use a boundless model of the world to help us find problems to solve. The most basic problem we face is the problem of whether the problem we believe is best is truly best. Dwight Eisenhower provided us with a solution to this problem: “If a problem cannot be solved, enlarge it.” Following this simple advice completely, we end with the problem that contains all other problems in deciding well. Our problem then becomes one of how best to address this universal problem.

“We do not have the knowledge we need to build a logically consistent and complete model of this universal problem. The best we can do is to build a complex model that provides us with a strategy for addressing it. As military strategist John Boyd wrote, such a grand strategy ought to provide us with (1) the ability to peer into and discern the inner nature of things; (2) the internal drive to think and take action without being urged; (3) the power to adjust or change in order to cope with new or unforeseen circumstances; and (4) the power to perceive or create interaction of apparently disconnected events or entities in a connected way.”

Preface, new seventh and eighth paragraphs

“Over time, we collectively learn that the timeless end of believing well (the truth) is one of many universally useful and inexhaustible factors of deciding well that we can never have in excess. Given our imperfect knowledge of how best to pursue the timeless end of deciding well, the pursuits of the timeless end of deciding well and the timeless end of believing well, though interwoven, are not one and the same. We also learn that the endless pursuits of all of these “boundless factors” intertwine to form a single endless pursuit:

For any boundless factor of deciding well (A) and any other boundless factor of deciding well (B), pursuing A well calls for us to decide well, which in turn calls for us to pursue B well. Further, pursuing B well calls for us to decide well, which in turn calls for us to pursue A well. Hence, the pursuit of A and the pursuit of B intertwine to form a **single endless** pursuit in which the better we decide, the more tightly the endless pursuits of these two factors intertwine. Applying this logic to all boundless factors of deciding well, the endless pursuits of all boundless factors of deciding well intertwine to form a **single endless** pursuit in which the better we decide, the more tightly the endless pursuits of these factors intertwine.”

“We can use this **insight into the nature** of deciding well to build *multiple-frame* models of deciding well. **We can use these models to find problems to solve** that “ring true” with all that we currently know about deciding well. **If a problem rings true, then we**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

have found a “beautiful” problem to solve. We can then use the models that best help us predict what will happen within the bounds of our chosen problem to help us solve it. Underlying this process of finding and solving problems is a concept of reason that calls for us to define, decompose, and discard our ignorance.”

were changed to:

“To address this universal problem well we need to consider the knowledge resources that we need to address it well. We may think of these resources as parts of factors of deciding well that we can never have in excess. We may call these boundless aspects of wisdom *boundless factors of deciding well*. So conceived, the pursuits of these boundless factors form a complex structure:

For any boundless factor of deciding well (A) and any other boundless factor (B), pursuing A well calls for us to decide well, which in turn calls for us to pursue B well. Further, pursuing B well calls for us to decide well, which in turn calls for us to pursue A well. Hence, the pursuit of A and the pursuit of B intertwine to form a **complex** pursuit in which the better we decide, the more tightly the endless pursuits of these two factors intertwine. Applying this logic to all boundless factors of deciding well, the endless pursuits of all boundless factors of deciding well intertwine to form a **complex** pursuit in which the better we decide, the more tightly the endless pursuits of these boundless factors intertwine.

“We can use this **complex description** of deciding well to build **boundless** models that help us find “beautiful” problem to solve, problems that “ring true” with all that we currently know about deciding well. We can then use the bounded models that best help us predict what will happen within the bounds of our chosen problem to help us evaluate alternative solutions.”

Preface, new ninth paragraph, first sentence

“The **extraordinary** claim that we ought to replace our modern concept of reason as rationality (the reason of geometry, mathematics, and logic) with a **new** concept calls for extraordinary evidence.”

was changed to:

“Underlying this approach to deciding well is a concept of reason that is more complete than rationality (the reason of geometry, mathematics, and logic). This more complete concept of reason calls for us to define and discard waste in deciding well. The claim that we ought to replace rationality with a **more complete** concept of reason is **extraordinary**. Such a claim calls for extraordinary evidence.”

Preface, new tenth paragraph

Changed “(*invariant*) science” to “science” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, new eleventh paragraph

Changed “timeless” to “boundless” and “marginalist” to “modern” in the first sentence.

Preface, last paragraph

Changed “this approach” to “this boundless approach” and “timeless” to “boundless” in the first sentence.

Chapter 1, entire chapter

Changed “temporal” to “bounded” in all (23 occurrences).

Changed “timeless” to “boundless” in all (51 occurrences).

Chapter 1, Choosing Frames Well, first paragraph

Changed “ambiguity” to “waste” in all (3 occurrences).

Changed “we currently know how” to “it is currently economic for us” in the first sentence.

Chapter 1, Values, third paragraph

Changed “bounded process of deciding well” to “problem at hand” in the fourth sentence.

Chapter 1, Steps for Building Multiple-Frame Models, third paragraph

Changed “tautological way in which we define Wisdom and deciding well” to “way in which we define Wisdom and deciding well in terms of each other” in the first sentence.

Chapter 1, Ever More Complete Multiple-Frame Models, third paragraph, footnote

Changed “multiple-frame approach to deciding well” to “boundless approach to deciding well put forth in this work” in the last sentence.

Chapter 1, Timeless Reason, entire section

“Timeless Reason

From the view of this multiple-frame approach⁴ to deciding well, hereafter referred to simply as *the multiple-frame approach*, involves distinguishing between the models we use to help us solve given problems and those we use to help us find problems to solve.

“In using the first type of model, we choose to ignore what we do not know about how what happens outside model domains affect what happens inside them. We can see this

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

most clearly in the *ceteris paribus* assumption in modern economic models. In effect, we presume to know more than we can ever possibly know in order to build logically consistent models that predict well within given domains.

“In using the second type of model, we explicitly include what we do not currently know into our models of the world. We use these models to help us find problems to solve. The most basic of these problems is the problem of whether the problem we believe is best is indeed best. Dwight Eisenhower provided us with a solution to this problem: “If a problem cannot be solved, enlarge it.” Following this simple advice completely, we end with the problem that contains all other problems in deciding well. Our problem then becomes one of how best to address this universal problem.

“We do not have the knowledge we need to build a logically consistent and complete model of this universal problem. The best we can do is to build a multiple-frame model that provides us with a strategy for addressing it. As we shall see, such a grand strategy ought to provide us with the ability to peer into and discern the inner nature of things, the internal drive to think and take action without being urged, the power to adjust or change in order to cope with new or unforeseen circumstances, and the power to perceive or create interaction of apparently disconnected events or entities in a connected way.¹⁵ The strategy for learning put forth in this work provides us with ever more of these provisions.”

“¹⁴ We can be more certain about which *approaches* are best than we can about which *methods* are best. We can be more certain of the recursive approach to determining the value of π than we can be certain of the best method of determining the value of π . Similarly, we can be more certain of the multiple-frame approach to deciding well than we can be certain of the best method of deciding well.”

“¹⁵ Boyd, J., *Patterns of Conflict*, 2005 Defense in the National Interest revision, slide #144. This slide presentation is available online in the Boyd archive section of Project White Horse, <<http://www.projectwhitehorse.com/boydsarchive.htm>> (30 April 2013).”

was reduced to the a sentence at the end of the preceding paragraph:

“We may call this complex approach to deciding well the *boundless approach to deciding well*, or simply the *boundless approach*. We may also call the “view” of this approach *the boundless view of deciding well*, or simply *the boundless view*.”

Chapter 2, entire chapter

Changed “temporal” to “bounded” in all (16 occurrences).

Changed “timeless” to “boundless” in all (4 occurrences).

Chapter 2, Boundless Tools for Living Well, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed ““view” of the multiple-frame approach” to “boundless view of deciding well” in the third sentence.

Chapter 2, Boundless Tools for Living Well, second paragraph, footnote

“² **Marginalist economics** is a collection of tools for describing the world as it currently is. **The** Chicago school distinguishes itself from other **marginalist** schools by distinguishing between tools for describing the world as it currently is (“positive economics”) and prescribing the world as it ought to be (“normative economics”). The “recursionist” approach to economics put forth in this work competes against **Austrian and Marxist** schools in describing the world as it is in the process of becoming. Given that we ought to live well, it also competes against these **two** schools in prescribing the world as it ought to be.”

was changed to:

“² **Modern economics more accurately refers to mainstream modern economics, the economics that emerged from the marginalist revolution of the 1870s. In the tradition of Alfred Marshall, we may think of mainstream economics** as a collection of tools for describing the world as it currently is. **In the tradition of Milton Friedman, the modern** Chicago school distinguishes itself from other **mainstream** schools by distinguishing between tools for describing the world as it currently is (“positive economics”) and prescribing the world as it ought to be (“normative economics”). In contrast, the “recursionist” approach to economics put forth in this work competes against **various evolutionary** schools in describing the world as it is in the process of becoming. Given that we ought to live well, it also competes against these schools in prescribing the world as it ought to be.”

Chapter 2, Boundless Tools for Living Well, last paragraph

“**In the rest of this chapter, *the bounded view* means the bounded view of modern economics. In the rest of this book, *the multiple-frame view* means the “view” of the multiple-frame approach.**³”

“³ **Earlier versions of this work used the term ‘multiplex view,’ which came from biologist Jack Cohen and mathematician Ian Stewart’s book about the co-evolution of minds and environments, *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997). Regrettably, the authors overlooked the unity of virtue.**”

was deleted.

Chapter 2, entire chapter

Changed “the bounded view” to “the bounded view of modern economics” in all (7 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “the **multiple-frame** view” to “the **boundless** view” in all (7 occurrences).

Chapter 2, *Chicago Screwdrivers*, entire subsection

Deleted the second sentence in the first (and only) paragraph:

“Just as we ought never to use hammers to drive in screws, we ought never to use bounded tools to find problems to solve.”

Deleted the title, which effectively merged this subsection into the preceding subsection.

Chapter 3, entire chapter

Changed “**temporal**” to “**bounded**” in all (3 occurrences).

Changed “**timeless**” to “**boundless**” in all (7 occurrences).

Changed “the **multiple-frame** view” to “the **boundless** view” in all (6 occurrences).

Changed “the **multiple-frame** approach” to “the **boundless** approach” in all (6 occurrences).

Chapter 3, *Overcoming Constraints in Deciding Well*, third paragraph

Changed “**pursuing the boundless end of** living well” to “living well” in the last sentence.

Chapter 3, *Public Order*, last paragraph

Changed “*boundless* public order” to “*boundless (timeless)* public order” in the third sentence.

Changed “*bounded* public order” to “*bounded (temporal)* public order” in the fourth sentence.

Chapter 3, *Public Entropy*, last paragraph

“We can use the concept of public entropy to help us **link partial descriptions of the world into an ever more coherent whole that we can use to find ever better problems to solve.**⁹ We can begin by **using it to relate** quantum mechanics to deciding well.”

“**Removing ambiguity from ambiguous links between beliefs in belief systems is like removing work-in-process inventory from elastic links between production processes in the Toyota production system. At the limit of the former, ambiguous links become logical. At the limit of the latter, elastic links become rigid. In both cases, we remove waste from the process of deciding well.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“We can use the concept of public entropy to help us know how best to remove waste from our belief systems. Removing waste from our belief systems is like removing work-in-process inventory from the Toyota production system. At the limit of the former, relations become logical. At the limit of the latter, links become rigid. In both cases, we remove waste from the process of deciding well. We can begin by relating quantum mechanics to deciding well.”

Chapter 3, *Decision Science*, title

Changed title to “*A Boundlessly Pragmatic Interpretation of Quantum Mechanics.*”

Chapter 3, *The Elephant in the Room*, first paragraph

Changed “in the realm that mathematicians consider to be practically infinite” to “practically infinite” in the last sentence.

Changed “Oxford University's” to “the Isaac” in the first sentence of the footnote.

Chapter 3, *The Elephant in the Room*, last paragraph, first two sentences

“From a theistic view, we were lucky to have been born into a world created to be conducive to life. From an atheistic view, we were extremely lucky to have been born into a world conducive to life.”

were deleted.

Chapter 4, entire chapter

Changed “temporal” to “bounded” in all (4 occurrences).

Changed “timeless” to “boundless” in all (1 occurrence).

Changed “the multiple-frame view” to “the boundless view” in all (6 occurrences).

Changed “the multiple-frame approach” to “the boundless approach” in all (1 occurrence).

Chapter 4, *Refining Natural Science*, second paragraph, footnote

“⁶ For mathematics to be a basis of a self-referential process of refining everyday thinking, mathematics must be a part of this process. From the multiple-frame view, the true sciences would include mathematics as the science of patterns. For more about this, see Appendix A.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Chapter 5, entire chapter

Changed “**temporal**” to “**bounded**” in all (3 occurrences).

Changed “**timeless**” to “**boundless**” in all (7 occurrences).

Changed “the **multiple-frame** view” to “the **boundless** view” in all (4 occurrences).

Changed “the **multiple-frame** approach” to “the **boundless** approach” in all (3 occurrences).

Chapter 6, entire chapter

Changed “**timeless**” to “**boundless**” in all (8 occurrences).

Changed “the **multiple-frame** view” to “the **boundless** view” in all (4 occurrences).

Chapter 6, OODA Loop Analysis, second paragraph

Changed “**temporal**” to “**temporally-bounded**” in the first sentence.

Chapter 7, entire chapter

Changed “**temporal**” to “**bounded**” in all (2 occurrences).

Changed “**timeless**” to “**boundless**” in all (5 occurrences).

Changed “the **multiple-frame** view” to “the **boundless** view” in all (3 occurrences).

Changed “the **multiple-frame** approach” to “the **boundless** approach” in all (1 occurrence).

Chapter 8, entire chapter

Changed “**temporal**” to “**bounded**” in all (4 occurrences).

Changed “**timeless**” to “**boundless**” in all (9 occurrences).

Changed “the **multiple-frame** view” to “the **boundless** view” in all (1 occurrence).

Changed “the **multiple-frame** approach” to “the **boundless** approach” in all (3 occurrences).

Chapter 8, Beautiful Reason, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “unambiguous” to “logically consistent” in all (4 occurrences).

Appendix A, entire appendix

Changed “temporal” to “bounded” in all (1 occurrences).

Changed “timeless” to “boundless” in all (4 occurrences).

Appendix A, title

Changed title from “The Science of Patterns” to “The Study of Patterns.”

Appendix A, The Basis of Mathematics, title

Changed title to “The Science of Patterns.”

Appendix A, The Science of Patterns, first paragraph

Changed “can” to “can never” in the third sentence.

Changed “tool in question” to “tool” in the last sentence.

Appendix A, The Science of Patterns, second paragraph

Changed “mathematics as a whole” to “the science of patterns” in the first sentence.

Changed “mathematics” to “the science of patterns” in the first sentence.

Appendix A, The Science of Patterns, last paragraph

Changed “mathematics” to “the science of patterns” in the first sentence.

Changed “mathematical” to “pattern” in the second sentence.

Appendix B, entire appendix

Changed “timeless” to “boundless” in all (2 occurrences).

Appendix B, *Machine Tools*, second paragraph

Changed “a temporal view of producing well common in the West” to “the view of modern economics and management science” in the first sentence.

Changed “a boundless view of producing well” to “the boundless view” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “efficient” to “**ever more** efficient” in the fourth sentence.

Appendix B, Less is More, first paragraph

Changed “**always** exceed” to “exceed” in the last sentence.

Appendix C, entire appendix

Changed “**timeless**” to “**boundless**” in all (6 occurrences).

Changes in Version 2013.05.14

Chapter 1, Values, fourth paragraph

Changed “**induce**” to “**create**” in the second sentence.

Chapter 1, Values, sixth paragraph

Changed “**inducing**” to “**creating**” in the first sentence.

Chapter 1, Values, last paragraph, last sentence

“**We can use this insight as the basis for building multiple-frame models of deciding well for helping us find problems to solve.**”

was changed to:

“**The process of deciding well calls for refining the process of deciding well. To refine this process well, we need a means of breaking it down into wieldier problems. One way involves breaking down Wisdom into universally useful resources for deciding well that we can never have in excess. We may call these aspects of Wisdom *boundless factors of deciding well*. Taken together, the pursuits of these boundless factors form a complex model of deciding well. We can use this model to judge whether the problems we find “ring true” with all that we currently know about deciding well. If they do, we have found a “beautiful” problem to solve.**”

Changes in Version 2013.05.15

Preface, fifth paragraph

Changed “**many** bounded” to “bounded” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Preface, eighth paragraph

Changed “boundless aspects” to “aspects” in the third sentence.

Changed “boundless factors” to “knowledge resources” in the fourth sentence.

Preface, tenth paragraph

“We can use this complex description of deciding well to build boundless models that help us find “beautiful” problem to solve, problems that “ring true” with all that we currently know about deciding well. We can then use the bounded models that best help us predict what will happen within the bounds of our chosen problem to help us evaluate alternative solutions.”

was appended to the preceding paragraph and changed to:

“We can use this model of the structure of deciding well to build complex models of deciding well that help us find “beautiful” problem to solve, problems that “ring true” with all that we currently know about deciding well.”

Preface, new tenth paragraph, first three sentences

“Underlying this approach to deciding well is a concept of reason that is more complete than rationality (the reason of geometry, mathematics, and logic). This more complete concept of reason calls for us to define and discard waste in deciding well. The claim that we ought to replace rationality with a more complete concept of reason is extraordinary. Such a claim calls for extraordinary evidence.”

was changed to:

“Underlying this approach to deciding well is a concept of reason based on beauty as well as logic. The claim that we ought to replace our current concept of reason calls for extraordinary evidence.”

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph, last two sentences

“We may call this complex approach to deciding well *the boundless approach to deciding well*, or simply *the boundless approach*. We may also call the “view” of this approach *the boundless view of deciding well*, or simply *the boundless view*.”

were changed to:

“We can then use bounded models that predict well within the domain of this problem to help us judge courses of action.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We may call this complex approach to deciding well *the boundless approach to deciding well*, or simply *the boundless approach*. We may also call the “view” of this approach *the boundless view of deciding well*, or simply *the boundless view*.”

Chapter 2, Boundless Tools for Living Well, last paragraph, footnote, second and third sentences

“In the tradition of Alfred Marshall, we may think of mainstream modern economics as a collection of tools for describing the world as it currently is. In the tradition of Milton Friedman, the modern Chicago school distinguishes itself from other mainstream schools by distinguishing between tools for describing the world as it currently is (“positive economics”) and prescribing the world as it ought to be (“normative economics”).”

were changed to:

“This approach to economics describes the world as it currently is.”

Chapter 3, Public Order, last paragraph

Changed “*boundless (timeless)*” back to “*boundless*” in the third sentence.

Changed “*temporal*” to “*current*” in the fourth sentence.

Chapter 3, Public Entropy, last paragraph

Changed “*relating*” to “*more tightly linking*” in the last sentence.

Chapter 7, An Extraordinary Anomaly, last paragraph

“Deciding well calls for all of us to judge actions by how well they ring true with all that we currently know about pursuing the boundless end of deciding well and to judge people by the content of their character as revealed by their actions.”

was changed to:

“In playing the boundless game of deciding well, we judge actions by how well they ring true with all that we currently know about deciding well and people by the content of their character as revealed by their actions.”

Chapter 7, The Scope of Biological Evolution, second paragraph

Changed “Our” to “We recognize that our” in the last sentence.

Chapter 8, Beautiful Reason, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “Our” to “We recognize that our” in the last sentence.

Chapter 8, Eudaemonia, last paragraph, first footnote

Moved the first (Appendix C reference) sentence to the end of the footnote.

Changed “Regrettably, in” to “In” in the new first sentence.

Appendix A, The Science of Patterns, title

Changed title to “**Indispensable Patterns.**”

Appendix A, Indispensable, first paragraph

Changed “independent” to “truly independent” in the second sentence.

Changed “boundless end” to “end” in the third sentence.

Deleted the last sentence: “We do so by acting as if the tool is indispensable.”

Appendix A, Indispensable Patterns, second paragraph

“We can apply this reasoning to the science of patterns. To prove that the science of patterns is indispensable in deciding well, we seek to disprove the proposition that there exist some patterns that are indispensable in deciding well. We do so by acting as if some patterns are indispensable in deciding well.”

was deleted.

Appendix A, Indispensable Patterns, last paragraph, first sentence

“We base the science of patterns on the reason of deciding well.”

were changed to:

“We may call the pursuit of knowledge of patterns that are indispensable in deciding well *the science of patterns.*”

Appendix C, fourth paragraph

Changed “myth” to “mythology” in the third sentence.

Appendix C, seventh paragraph, last two sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“***Ironically, a visual means of expressing this self-similarity lies beneath our feet as we look up at the oculus. We find this means*** in a crude version of a self-similar tile pattern known to Roman artisans since the late eleventh century:”

were changed to:

“***A visual means of expressing this self-similarity lies beneath our feet in a crude version of a self-similar tile pattern known to Roman artisans since the late eleventh century:***”

Appendix C, last paragraph

Changed “perspective ***with a two-point perspective***” to “perspective” in the third sentence.

Changed “***juxtaposition***” to “***clash of perspectives***” and “higher dimensional” to “***higher-dimensional***” in the fourth sentence.

Changes in Version 2013.05.20

Chapter 1, Useful Frames, section

Demoted section to subsection.

Chapter 4, *Academic Fields*, fourth paragraph

Moved footnote to the end of the last sentence.

Changed “***natural (invariant) game theory***” to “***game theory***” in the last sentence.

Changed “***natural (invariant) game theory***” to “***game theory***” in the first sentence of the footnote.

Chapter 6, A Common Boundless End, first and last paragraphs

“***Defining the process of living well and the boundless end of living well in terms of one another creates ambiguity in the frame for living well. We may refine our beliefs about living well by creating a frame for satisfying our need for mystical oneness. We do this by defining the process of satisfying our need for mystical oneness and the boundless end of this process in terms of one another. We may call the boundless end of satisfying our need for mystical oneness Wholeness.***”

“***However useful creating a frame for linking well may be in helping us better understand living well, it does not tell us whether we ought to link well in order to live well or to live well in order to link well. From a logical view, the belief that we ought to***”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

link well in order to live well conflicts with the belief that we ought to live well in order to link well. From the boundless view, we best settle this conflict by having these beliefs compete in the marketplace of ideas for helping us decide well.”

were changed to:

“The possibility that some part of us survives the death of our bodies casts doubt on the belief that we link well in order to live well, as opposed to living well in order to link well. We may address this problem by creating a frame for satisfying our need for linking well. We do so by defining the process of linking well and the boundless end of this process in terms of one another. We may call the boundless end of linking well Wholeness.

“Given our ignorance of Wisdom, the pursuits of Happiness and Wholeness are not one in the same. From a logical view, the belief that we ought to pursue Happiness conflicts with the belief that we ought to pursue Wholeness. From the boundless view, we ought to pursue Wisdom, which calls for us to resolve such conflicts in the marketplace of ideas for helping us decide well.”

Chapter 8, Eudaemonia, last paragraph, last sentence

“Including Eudaemonia in our set of boundless factors of deciding well provides us with a means of thinking about how best to govern the parts of our minds that process information unconsciously.”

was changed to:

“Pursuing this boundless end helps us use the normally unconscious parts of our minds ever more wisely.”

Appendix C, title quotes

Added reference to the Protagoras quote.

Removed braces from the last quote.

Changed “*Plato's Socrates*” back to “*Socrates*” in the last quote.

Appendix C, first paragraph, third sentence

“In the movie based on astronomer Carl Sagan’s book, *Contact*, billionaire industrialist S. R. Hadden said that the key to translating the alien message was realizing that our modern way of reasoning is not the best: “An alien intelligence is going to be more advanced and that means efficiency functioning on multiple levels and in multiple dimensions.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“In the movie based on Carl Sagan’s book *Contact*, the key to translating the aliens’ message was recognizing that they pursued Beauty: “An alien intelligence is going to be more advanced and that means efficiency functioning on multiple levels and in multiple dimensions.””

Appendix C, second paragraph

Changed “boundless” back to “timeless” in the last sentence.

Changes in Version 2013.05.22

Preface, first paragraph

Changed “questioned relentlessly” to “challenged” in the fourth sentence.

Preface, third to last paragraph

Changed “science” to “true science” in the last sentence.

Preface, second to last paragraph

Changed “grand strategy for competing in time” to “grand strategy” in the fourth sentence.

Chapter 8, Eudaemonia, last paragraph, first footnote

Changed “In” to “Note that in” and “in Book II of *The Republic*,” to “,” in the first sentence.

Moved the sentence referring to Appendix C back to the beginning of the footnote.

Chapter 8, Eudaemonia, last paragraph, last footnote

Changed “end” to “ends” in the last sentence.

Appendix C, third paragraph

Changed “octagons, which represent learning ever more about Wisdom and the world” to “octagons” in the last sentence.

Appendix C, fourth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The most important octagon is the faux oculus at the center of the ceiling, which is **the result of combining two Platonic themes, the unity of virtue (*Protagoras*) and the four elements (*Timaeus*)**:

[Photograph of the central ceiling]

“The four circles containing women represent poetry, philosophy, jurisprudence, and theology. The four hourglass composites of scenes from Greek mythology and Roman history represent earth, water, air and fire. Together with the central oculus, these four composites form a Greek cross. **The center of this cross represents both *Hagia Sophia* (Holy Wisdom) and *aether* (the mysterious fifth element). Above this oculus, four putti push up and another four putti pull down a circle that contains a symbol of the papacy.**”³

was changed to:

“The most important octagon is the faux oculus at the center of the ceiling, which is **also the highest point in the room. Surrounding this oculus are four hourglass composites of scenes from Greek mythology and Roman history. Also surrounding it are four circles containing female figures that introduce the subjects of the four walls. These subjects are poetry (left), philosophy (bottom), justice (right), and theology (top)**:³

[Photograph of the ceiling]

“From the boundless view, the octagon is the result of combining two Platonic themes, the four elements (*Timaeus*) and the unity of virtue (*Protagoras*). We see the four elements in the hourglass composites. Together with the central oculus, these four composites form a Greek cross that aligns with the corners of the room. We see the unity of virtue in the pursuits of the boundless ends of poetry (Beauty), philosophy (the Truth), justice (Justice), and theology (Wholeness). Taken together with the oculus, the pursuits of these four aspects of Wisdom form a second cross that aligns with the walls of the room. The center of these two crosses represents both the mysterious fifth element (*aether*) and Wisdom (*Hagia Sophia*).”

Appendix C, fifth paragraph, first three sentences

“From the boundless view **of this work**, this Tantalean image represents learning ever more about both **Wisdom and the world. The four aspects of virtue represent the pursuits of the boundless ends of contemplating well (Beauty), believing well (the Truth), governing ourselves well (Justice), and linking well with something infinitely greater than ourselves (Wholeness).** The four putti pushing up the papal symbol stand at the center of the edges of the octagon nearest to **these boundless factors of deciding well.**”

were changed to:

“Above the oculus, four putti push up and another four pull down a circle that contains a symbol of the papacy:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

[Photograph of the oculus]

From the boundless view, this Tantalean image represents learning ever more about both the world **and the means of learning ever more about the world (Wisdom)**. The four putti pushing up the papal symbol stand at the center of the edges of the octagon nearest to the four circles that represent the boundless **ends of poetry, philosophy, justice, and theology.**”

Changes in Version 2013.05.25

Chapter 1, Ever More Complete Multiple-Frame Models, last paragraph

Changed ““view”” to “**multiple-frame** “view”” in the last sentence.

Chapter 4, Modern Policy Mistakes, second paragraph

Changed “**makes people**” to “**gives people the energy, clarity, and wholeness to**” in the first sentence.

Changed “**product**” to “**pill to the market**” in the second sentence.

Appendix C, fourth paragraph

“The most important octagon is the faux oculus at the center of the ceiling, which is also the highest point in the room. Surrounding this oculus are four hourglass composites of scenes from Greek mythology and Roman history. Also surrounding it are four circles containing female figures that introduce the subjects of the four walls. These subjects are poetry (left), philosophy (bottom), **justice** (right), and theology (top):³

[Photograph of the ceiling]

“From the boundless view, the octagon is the result of combining two Platonic themes, the four elements (*Timaeus*) and the unity of virtue (*Protagoras*). **We see the four elements in the hourglass composites.** Together with the central oculus, these four composites form a Greek cross that aligns with the corners of the room. We see the unity of virtue in the pursuits of the boundless ends of poetry (Beauty), philosophy (the Truth), **justice** (Justice), and theology (Wholeness). Taken together with the oculus, the pursuits of these four aspects of Wisdom form a second cross that aligns with the walls of the room. The center of these two crosses represents both the mysterious fifth element (*aether*) and Wisdom (*Hagia Sophia*).”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The most important octagon is the faux oculus at the center of the ceiling, which is also the highest point in the room. Surrounding this oculus are four hourglass composites of scenes from Greek mythology and Roman history, which represent fire (left top), earth (right top), water (right bottom), and air (left bottom). Also surrounding it are four circles containing female figures that introduce the subjects of the four walls. These subjects are poetry (left), philosophy (bottom), jurisprudence (right), and theology (top):

[Photograph of the ceiling]

“From the boundless view, the octagon is the result of combining two Platonic themes, the four elements (*Timaeus*) and the unity of virtue (*Protagoras*). Together with the central oculus, these four composites form a Greek cross that aligns with the corners of the room. We see the unity of virtue in the pursuits of the boundless ends of poetry (Beauty), philosophy (the Truth), jurisprudence (Justice), and theology (Wholeness). Taken together with the oculus, the pursuits of these four aspects of Wisdom form a second cross that aligns with the walls of the room. The center of these two crosses represents both the mysterious fifth element and Wisdom.”

Changes in Version 2013.05.28

Appendix C, fourth and fifth paragraphs

“The most important octagon is the faux oculus at the center of the ceiling, which is also the highest point in the room. Surrounding this oculus are four hourglass composites of scenes from Greek mythology and Roman history, which represent fire (left top), earth (right top), water (right bottom), and air (left bottom). Also surrounding it are four circles containing female figures that introduce the subjects of the four walls. These subjects are poetry (left), philosophy (bottom), jurisprudence (right), and theology (top):³

[Photograph of the ceiling]

“From the boundless view, the octagon is the result of combining two Platonic themes, the four elements (*Timaeus*) and the unity of virtue (*Protagoras*). Together with the central oculus, these four composites form a Greek cross that aligns with the corners of the room. We see the unity of virtue in the pursuits of the boundless ends of poetry (Beauty), philosophy (the Truth), jurisprudence (Justice), and theology (Wholeness). Taken together with the oculus, the pursuits of these four aspects of Wisdom form a second cross that aligns with the walls of the room. The center of these two crosses represents both the mysterious fifth element (*aether*) and Wisdom (*Hagia Sophia* and/or *Logos*).

“Above the oculus, four putti push up and another four pull down a circle that contains a symbol of the papacy:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

[Photograph of the oculus]

“From the boundless view, this Tantalean image represents learning ever more about both the world and the means of learning ever more about the world (Wisdom). The four putti pushing up the papal symbol stand at the center of the edges of the octagon nearest to the four circles that represent the boundless ends of poetry, philosophy, justice, and theology. Three of the four putti pulling down this symbol stand at the center of the edges nearest to earth, water, and air. The putto that ought to stand at the center of the edge nearest to fire, halfway between poetry and theology, instead sits on the corner of fire and theology with his rope clearly in the domain of theology. This greater tension in theology symbolizes the conflict between fervent beliefs about the pursuit of Wholeness and the true pursuit of Wholeness.⁴”

were changed to:

“The most important octagon is the faux oculus at the center of the ceiling, which is also the highest point in the room. Surrounding this oculus are four hourglass composites of scenes from Greek mythology and Roman history, which represent fire (left top), earth (right top), water (right bottom), and air (left bottom). Also surrounding it are four circles containing female figures that introduce the subjects of the four walls. These subjects are poetry (left), philosophy (bottom), jurisprudence (right), and theology (top):³

[Photograph of the ceiling]

“From the boundless view, the octagon is the result of combining two Platonic themes, the four elements (*Timaeus*) and the unity of virtue (*Protagoras*). Together with the central oculus, the four **hourglass** composites form a Greek cross that aligns with the corners of the room. **The center of this cross represents the mysterious fifth element. Together with the oculus, the four circles form a cross that aligns with the walls of the room. The center of this cross represents Wisdom, which is** the unity of the boundless ends of poetry (Beauty), philosophy (the Truth), jurisprudence (Justice), and theology (Wholeness).

“Reinforcing the relation between the fifth element and Wisdom is the scene in the rectangle in the lower left of the ceiling, which connects the circles representing the boundless ends of poetry (Beauty) and philosophy (the Truth):

[Photograph of Urania]

“This scene depicts a female representation of Wisdom (*Urania*, the Greek muse of astronomy) moving the mysterious element that keeps the heavens in motion (*aether*).

“Also reinforcing this relation are the Greek and Roman crosses formed by rays emanating from the encircled dove on the wall fresco dedicated to the boundless end of theology (Wholeness):

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

[Photograph of Holy Ghost]

“The dove represents the Holy Ghost, the mysterious divine element within ourselves. Pursuing the truth about this element calls for us to pursue the boundless end of deciding well (Wisdom), which in turn calls for us to pursue the truth about this element.”

Appendix C, last paragraph, last sentence

“Which is the better tool for helping us live well?”

was promoted to a paragraph and changed to:

“We can find a variation of the square-within-an-octagon-within-a-square theme of this boundless symbol of renaissance on the wall dedicated to the boundless end of jurisprudence (Justice). On the left, the chair of Emperor Justinian, an author of Roman law, sits directly on a square tile floor. On the right, the chair of Pope Gregory IX, an author of ecclesiastical law, sits on a square platform, which sits on an octagonal platform, which sits on a square tile floor:

[Photographs of seated figures on jurisprudence wall.]

“Finally, we can find a musical version of this renaissance theme in the fresco dedicated to the boundless end of poetry (Beauty). In the visual center of this fresco, Apollo gazes toward heaven as he plays music on his nine-string “lyre.” He appears to play diatonic (eight-note, repeating-octave scale) melodies using the seven fingerboard strings and a two-note drone using the two strings above the fingerboard. Arguably, this two-note drone represents the two-part reason of Plato and Aristotle that underlies the boundless approach to deciding well:

[Photograph of Apollo playing lyre on poetry wall]

“From these various depictions of the reason of Plato and Aristotle, we may reasonably conclude that the decoration of this room portrays a multiple-frame strategy for pursuing Wisdom (*Hagia Sophia/Logos*). We may also speculate that this multiple-frame strategy is self-referential. If it is, we ought to judge the stories that we use to pursue Wisdom by how well they help us pursue Wisdom. We ought to judge them by their fruits.”

Changes in Version 2013.06.01

Chapter 1, Steps for Building Multiple-Frame Models, first paragraph

Added the following footnote to the first sentence:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹³ Earlier versions of this work used the term ‘multiplex,’ which came from biologist Jack Cohen and mathematician Ian Stewart’s book about the co-evolution of minds and environments, *Figments of Reality: The Evolution of the Curious Mind* (Cambridge, England: Cambridge University Press, 1997). Regrettably, the authors overlooked the unity of virtue.”

Appendix C, fifth paragraph

Changed “*aether*” to “*celestial aether*” in the last sentence.

Appendix C, seventh paragraph, end

Added the sentence:

“Reinforcing this tension are the black clouds underlying the encircled female figure representing theology at the top of the ceiling, as opposed to the white clouds underlying justice, the mauve clouds underlying philosophy, and the pink clouds underlying poetry.”

Appendix C, eleventh paragraph

Changed “endless rationality” to “reason as rationality” in the first sentence.

Appendix C, last paragraph

Changed “portray” to “as a whole depicts” in the first sentence.

Changes in Version 2013.06.07

Acknowledgments, last paragraph

Changed “numbers, especially for those he worked with in the” to “numbers without considering the usefulness of these numbers, a habit he acquired while rising through the ranks of” in the fourth sentence.

Chapter 3, *Public Entropy*, last paragraph, last sentence

“We can begin by more tightly linking quantum mechanics to deciding well.”

was changed to:

“We can begin using this concept of public entropy to remove waste from our belief systems by more tightly linking quantum mechanics to deciding well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 6, The Elephant in the Room, last paragraph, second sentence

“From a logical view, the belief that we ought to pursue Happiness conflicts with the belief that we ought to pursue Wholeness.”

was changed to:

“From a logical view, the belief that we ought to link well in order to live well conflicts with the belief that we ought to live well in order to link well.”

Appendix C, third paragraph

Inserted the section title “The Forgotten Role of Octagons.”

Appendix C, The Forgotten Role of Octagons, ninth paragraph, footnote, last two sentences

“For example, replacing the papal symbol and putti above the oculus in the ceiling would have harmed the relation between the ceiling and the fresco dedicated to theology. Arguably, this is but one of many compromises made in flattening a universal story of enlightenment into this walk-in Christian mandala.”

were changed to:

“For example, replacing the papal symbol and putti above the oculus in the ceiling would have harmed the relation between the ceiling and the poetry, theology, and jurisprudence frescoes.”

Appendix C, The Forgotten Role of Octagons, tenth paragraph

Changed “square platform, which sits on an octagonal platform” to “square-on-octagon” in the last sentence.

Appendix C, The Forgotten Role of Octagons, end

Added the following:

“[The published work will contain two more sections.]”

Changes in Version 2013.06.08

Appendix C, The Forgotten Role of Octagons, last paragraph, last three sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We may also speculate that this multiple-frame strategy is self-referential. If it is, we ought to judge the stories that we use to pursue Wisdom by how well they help us pursue Wisdom. We ought to judge them by their fruits in pursuing the truth about Wisdom.”

were deleted.

Changes in Version 2013.06.10

Edits that resulted from Sally Osborn's review of May 22 version.

Entire document

Changed “indispensable **in**” to “indispensable **to**” in all (4 occurrences).

Preface, first paragraph

Changed “trained-economist” to “trained economist” in the first sentence.

Changed “school to” to “school **in order** to” in the third sentence.

Preface, third paragraph

Changed “temporally bounded” to “temporally-bounded” in the first sentence of the block quote.

Preface, sixth paragraph

Changed “problem” to “problem.” in the first sentence.

Preface, seventh paragraph

Changed “**need**” to “**require**” in the first sentence.

Changed “problem” to “problems” in the last sentence.

Chapter 1, Values, third paragraph, footnote

Changed “third-person” to “third person” and “first-person” to “first person” in the third sentence.

Chapter 1, Ever More Complete Multiple-Frame Models, third paragraph

Changed “debts **that** we” to “debts we” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Overcoming Constraints in Deciding Well*, second and third paragraphs

Removed all italics from the last sentences.

Chapter 3, *A Boundlessly-Pragmatic Interpretation of Quantum Mechanics*, seventh paragraph

Changed “with not only” to “not only with” in the second sentence.

Chapter 3, *A Boundlessly-Pragmatic Interpretation of Quantum Mechanics*, eighth paragraph, first footnote

Changed “poorly-trained” to “poorly trained” in the third sentence.

Changed “highly-trained” to “highly trained” in the fourth sentence.

Chapter 4, *Refining Natural Science*, first paragraph

Changed “refining models” to “refining the models” in the second sentence.

Chapter 4, *Refining Finding Problems to Solve*, second paragraph

Changed “way that” to “way in which” in the first sentence.

Chapter 4, *Refining Finding Problems to Solve*, third paragraph

Changed “way that” to “way in which” in the first sentence.

Chapter 4, *Refining Finding Problems to Solve*, fourth paragraph

Changed “way” to “way in which” in the first sentence.

Chapter 5, *The Explicit Experiment*, first paragraph, second footnote

Changed “it.” to “it” in the last sentence.

Chapter 5, *A Sovereign Story for Deciding Well*, last paragraph, second footnote

Abbreviated the names of states (2 occurrences).

Chapter 5, *The Explicit Experiment*, first paragraph, second footnote

Changed “it.” to “it” in the last sentence.

Chapter 5, *Lower Barriers to Trade*, first paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “high technology” to “high-technology” in the last sentence.

Chapter 6, A Hole in Pursuing Happiness, first paragraph

Changed “**the** Beauty” to “Beauty” in the third sentence.

Chapter 6, *Mystical Oneness*, last paragraph

Changed “**M**edieval” to “**m**edieval” in the last sentence.

Chapter 6, A Common Boundless End, last paragraph

Changed “one **in**” to “one **and**” in the first sentence.

Chapter 7, *E–M Theory*, first paragraph

Changed “widely-**used**” to “widely used” in the fourth sentence.

Chapter 7, *OODA Loop Analysis*, second paragraph

Changed “temporally-**bounded**” to “temporally bounded” in the first sentence.

Chapter 7, *OODA Loop Analysis*, last paragraph

Changed “the dissonance experienced by the subjects of Bruner and Postman’s experiment **in Saddam Hussein**” to “**in Saddam Hussein** the dissonance experienced by the subjects of Bruner and Postman’s experiment ” in the third sentence.

Chapter 7, *Boyd's Grand Strategy*, last paragraph

Changed “imaginat**ions**” to “imagination” in the last sentence.

Chapter 8, Beautiful Reason, sixth paragraph

Changed “know it” to “know **that** it” in the last sentence.

Chapter 8, Beautiful Reason, sixth paragraph, first footnote

Changed “**O**ver” to “**o**ver” and “Melon” to “Mellon” in the first sentence.

Chapter 8, Complete Reason, first paragraph, first footnote

Changed “prove the set” to “prove **that** the set” in the last sentence.

Chapter 8, Eudaemonia, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “by adding what we currently believe we know about pursuing the boundless factors of deciding well **to them**” to “**to them** by adding what we currently believe we know about pursuing the boundless factors of deciding well” in the third sentence.

Appendix A, A Modern Intelligence Test, sixth paragraph

Changed “way **that**” to “way **in which**” in the second sentence.

Appendix A, A Modern Intelligence Test, ninth paragraph

Changed “way **that**” to “way **in which**” in the second sentence.

Appendix A, A Modern Intelligence Test, tenth paragraph

Changed “explain top-row” to “explain **the** top-row” in the fifth sentence.

Appendix A, The Big Picture, second paragraph

Changed “complete **of** an answer” to “complete an answer” in the fifth sentence.

Appendix A, The Big Picture, third paragraph

Changed “symbols we plan” to “symbols **that** we plan” in the second sentence.

Appendix A, Indispensable Patterns, first paragraph

Changed “know we” to “know **that** we” in the third sentence.

Appendix A, Indispensable Patterns, last paragraph

Changed “disprove it” to “disprove **that** it” in the third sentence.

Appendix B, Folding in Production Processes, second paragraph

Changed “the operation **is**” to “**is** the operation” in the last sentence.

Appendix B, Temporal Details, first paragraph, footnote

Changed “**The** Cambridge Corporation” to “**t**he Cambridge Corporation” in the first sentence.

Changed “**The** Cambridge Corporation” to “Cambridge Corporation” in the second sentence.

Appendix B, Less is More, title

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Capitalized “**I**s.”

Appendix C, second paragraph

Removed italics.

Appendix C, The Forgotten Role of Octagons, second paragraph

Changed order of adjectives in parentheses.

Changed “high resolution” to “high-resolution” in the first sentence of the footnote.

Appendix C, The Forgotten Role of Octagons, fifth paragraph

Changed “theology with his rope” to “theology, with his rope” in the last sentence.

Appendix C, The Forgotten Role of Octagons, seventh paragraph, footnote

Changed “122” to “22” in the first sentence.

Appendix C, The Forgotten Role of Octagons, eleventh paragraph

Removed italics from “**Vitruvian Man**” in the third to last sentence.

Appendix C, The Forgotten Role of Octagons, twelfth paragraph

Changed “square tile” to “square-tiled” in the all (2 occurrences).

Changes in Version 2013.06.12

Appendix C, The Forgotten Role of Octagons, first paragraph

Changed “this room” to “the Stanza della Segnatura” in the first sentence.

Appendix C, The Forgotten Role of Octagons, third paragraph, first sentence:

“Reinforcing the relation between the fifth element and Wisdom is the scene in the **rectangle in the lower left of the ceiling, which** connects the circles representing the boundless ends of poetry (Beauty) and philosophy (the Truth):”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Reinforcing the relation between the fifth element and Wisdom is the scene in the **imperfect square that** connects the circles representing the boundless ends of poetry (Beauty) and philosophy (the Truth):”

Appendix C, The Forgotten Role of Octagons, fourth paragraph, last sentence

“Pursuing the truth about this element calls for us to pursue the boundless end of deciding well (**Wisdom**), which in turn calls for us to pursue the truth about this element..”

was changed to:

“Pursuing the truth about this element calls for us to pursue the boundless end of deciding well, which in turn calls for us to pursue the truth about this **mysterious element. In Roman Catholicism, the boundless end of deciding well is Holy Wisdom (Hagia Sophia/Logos).**”

Appendix C, The Forgotten Role of Octagons, second to last paragraph, end

Added the following:

“**Justinian addresses problems that concern everyday living and Gregory IX address problems that concern living wisely. In the corner scene above and to the left of Justinian, Solomon must choose the true mother of a child that two women claim. In the corner scene above and to the right of Gregory IX, Adam and Eve must choose whether to learn to live wisely:**

[Photographs of Solomon and Eden corner scenes]”

Appendix C, The Forgotten Role of Octagons, last paragraph, last sentence

“From these various depictions of **the reason of Plato and Aristotle**, we may reasonably conclude that the decoration of this room as a whole depicts a multiple-frame strategy for pursuing Wisdom (*Hagia Sophia/Logos*).”

was changed to:

“From these various depictions of reason, we may reasonably conclude that the decoration of this room as a whole depicts a multiple-frame strategy for pursuing **the Truth about Holy Wisdom (Hagia Sophia/Logos), which is a dualist version of pursuing the Truth about Wisdom (natural science).**

“[The published version of this work will contain two more sections.]”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2013.06.13

Appendix C, The Forgotten Role of Octagons, fifth paragraph, last four sentences

“The four putti pushing up the papal symbol stand at the center of the edges of the octagon nearest to the four circles that represent the boundless ends of poetry, philosophy, jurisprudence, and theology. Three of the four putti pulling down this symbol stand at the center of the edges nearest to earth, water, and air. The putto that ought to stand at the center of the edge nearest to fire, halfway between poetry and theology, instead sits on the corner of fire and theology, with his rope clearly in the domain of theology.⁴ Reinforcing this tension are the black clouds underlying the encircled female figure representing theology at the top of the ceiling, as opposed to the white clouds underlying justice, the mauve clouds underlying philosophy, and the pink clouds underlying poetry.”

“⁴ In a letter to Marcellinus of Carthage, Augustine of Hippo addressed this issue: “If anyone shall set the authority of Holy Writ against clear and manifest reason, he who does this knows not what he has undertaken; for he opposes to the truth not the meaning of the Bible, which is beyond his comprehension, but rather his own interpretation; not what is in the Bible, but what he has found in himself and imagines to be there.” In a letter to Christina of Lorraine concerning the use of biblical quotations in matters of science, Galileo Galilei used this quote to buttress the claim that the Bible concerns how to go to heaven, not how heaven goes. An English translation of Galileo’s letter is available online at <http://www.college.columbia.edu/core/sites/core/files/text/Galileo.pdf> (30 April 2013).”

were changed to:

“This greater tension in theology symbolizes the conflict between fervent beliefs about the pursuit of Wholeness and the true pursuit of Wholeness.”

Appendix C, The Forgotten Role of Octagons, second to last paragraph

“We can find a variation of the square-within-an-octagon-within-a-square theme of this boundless symbol of renaissance on the wall dedicated to the boundless end of jurisprudence (Justice). On the left, the chair of Emperor Justinian, an author of Roman law, sits directly on a square-tiled floor. On the right, the chair of Pope Gregory IX, an author of ecclesiastical law, sits on a square-on-octagon platform, which sits on a square-tiled floor:

[Photographs of Justinian and Gregory IX]

Justinian addresses problems that concern everyday living and Gregory IX address problems that concern living wisely. In the corner scene above and to the left of Justinian, Solomon must choose which of two woman is the mother of the child that

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

both claim to be theirs. In the corner scene above and to the right of Gregory IX, Adam and Eve must choose whether to learn to live wisely:”

was changed to:

“We can find a variation of the square-within-an-octagon-within-a-square theme on the wall dedicated to the boundless end of jurisprudence (Justice). On the left, the chair of Emperor Justinian sits directly on a square-tiled floor. On the right, the chair of Pope Gregory IX sits on a square-on-octagon platform, which sits on a square-tiled floor:

[Photographs of Justinian and Gregory IX]

Justinian, **an author of civil law**, addresses problems that concern everyday living. In the corner scene above and to the left of Justinian, Solomon must choose which of two woman is the mother of the child that both claim to be theirs. **In contrast, Gregory IX, an author of ecclesiastical law, addresses problems that concern living wisely.** In the corner scene above and to the right of Gregory IX, Adam and Eve must choose whether to learn to live wisely:”

Appendix C, The Forgotten Role of Octagons, last paragraph, last sentence

“From these various depictions of reason, we may reasonably conclude that the decoration of this room as a whole depicts a multiple-frame strategy for pursuing **the Truth about Holy Wisdom (*Hagia Sophia/Logos*), which is a dualist version of pursuing the Truth about Wisdom (natural science).**”

was changed to:

“From these various depictions of reason, we may reasonably conclude that the decoration of this room as a whole depicts a multiple-frame strategy for pursuing Holy Wisdom (*Hagia Sophia/Logos*).”

Changes in Version 2013.06.15

Chapter 3, Public Entropy, fifth paragraph, footnote, end

Added the following sentences:

“**Further complicating this issue is the knowledge intensity of the boundlessly pragmatic approach to finding problems to solve. Until people have achieved a critical mass in knowledge about pursuing the boundless factors of deciding well, they may be better off using bounded models. For more about this problem, see Appendix C.**”

Appendix C, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**warrior**” to “**lawyer**” in the last sentence.

Appendix C, The Forgotten Role of Octagons, fifth paragraph, second sentence

“In pointing up, Plato tells us to aspire to a more refined form of the reasoning on which **he** and Aristotle stand, as represented by the square-within-an-octagon-within-a-square pattern on the floor beneath their feet.”

was changed to:

“In pointing up, Plato tells us to **pursue Wisdom by pursuing Beauty, Wholeness, Justice, and the Truth. In holding his hand parallel to the ground, Aristotle tells us to know the world around us. In following the advice of both Plato and Aristotle, we** aspire to a more refined form of the reasoning on which **Plato** and Aristotle stand, as represented by the square-within-an-octagon-within-a-square pattern on the floor beneath their feet.”

Changed “aspire” to “pursue Wisdom by pursuing Beauty, Wholeness, Justice, and the Truth. In doing so, he tells us to aspire” in the second sentence.

Appendix C, The Forgotten Role of Octagons, tenth paragraph

Changed “which sits” to “which **in turn** sits” in the third sentence.

Changed “**must** choose **whether**” to “choose” in the last sentence.

Appendix C, The Forgotten Role of Octagons, end

“**Black Clouds in Theology**”

From a modern view, there exists an internal contradiction within the Roman Catholic pursuit of Holy Wisdom. We can see the metaphorical storm this conflict creates in the black clouds underlying the figure of Theology:

[Photograph of the Theology figure]

Compare these clouds with the clouds under the figures of Jurisprudence, Poetry, and Philosophy:

[Photographs of the Jurisprudence, Poetry, and Philosophy figures]

Arguably, the black clouds represent a storm; the white, full daylight; the pink, sunrise; and the mauve, morning twilight.

“In the scene above the oculus, this contradiction concerns an imbalance between poetry and theology. The four putti pushing up the papal symbol stand at the center of the edges of the octagon nearest to the four circles that represent the boundless ends of

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

poetry, philosophy, jurisprudence, and theology. Three of the four putti pulling down this symbol stand at the center of the edges nearest to earth, water, and air. The putto that ought to stand at the center of the edge nearest to fire, halfway between poetry and theology, instead sits on the corner of fire and theology, with his rope clearly in the domain of theology. This greater tension in theology symbolizes the conflict between fervent beliefs about the pursuit of Wholeness and the true pursuit of Wholeness:

[Photograph of oculus moved from the fourth paragraph of this section]

Over a thousand years before Raphael painted this scene, Augustine of Hippo addressed this issue in a letter to Marcellinus of Carthage: “If anyone shall set the authority of Holy Writ against clear and manifest reason, he who does this knows not what he has undertaken; for he opposes to the truth not the meaning of the Bible, which is beyond his comprehension, but rather his own interpretation; not what is in the Bible, but what he has found in himself and imagines to be there.”⁶

“In the theology fresco, this contradiction concerns a conflict between art and the reason of Plato and Aristotle. We can see this conflict in the celestial figures in the upper left of the fresco. From the view of art, people are the measure of all things, of the existence of the things that are and the non-existence of the things that are not. Celestial beings are as realistically portrayed as the historical figures in the philosophy fresco are:

[Photograph of celestial beings in theology fresco]

In contrast, from the view of the reason of Plato and Aristotle, what some people perceive as celestial beings are natural phenomena that they do not yet fully understand. From this view, we ought to judge our beliefs by how useful they are in refining everyday thinking. Celestial beings of our world appear to be part of the white aether and the celestial beings beyond our world appear to be part of the golden aether.

“From the boundless view of deciding well, which is an imaginary view of the room as a whole, this internal contradiction concerns the problem of when we ought to use bounded models of the world to help us find problems to solve. We ought to do so only when the added benefit of using the boundless model of deciding well is not worth the extra cost of using it. The wiser we are, the less frequently this happens.”

“⁶ Over a hundred years after Raphael painted this scene, Galileo Galilei used this quote in an open letter to Christina of Lorraine in which he buttressed his claim that the Bible concerns how to go to heaven, not how heaven goes. The Inquisition banned this letter in all Catholic countries. An English translation of it is available online at <<http://www.college.columbia.edu/core/sites/core/files/text/Galileo.pdf>> (15 June 2013).”

Appendix C, end

Changed the bracketed note to reflect the addition of the section on black clouds.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2013.06.17

Appendix C, second paragraph

Changed “Julius II, the Renaissance lawyer who aspired to create a Christian empire based on what he and his advisors believed were the timeless values of classical Greece and Rome” to “Julius II in the early sixteenth century of the Common Era” in the last sentence.

Appendix C, The Forgotten Role of Octagons, fourth paragraph

“Also reinforcing this relation are the Greek and Roman crosses formed by rays emanating from the encircled dove on the wall fresco dedicated to the boundless end of theology (Wholeness):

[Photograph of the Holy Ghost in the theology fresco]

The dove represents the Holy Ghost, the mysterious divine element within ourselves. Pursuing the truth about this element calls for us to pursue the boundless end of deciding well, which in turn calls for us to pursue the truth about this mysterious element. In Roman Catholicism, the boundless end of deciding well is Holy Wisdom (*Hagia Sophia/Logos*).”

was inserted before the last paragraph and changed to:

“On the Theology Wall

We can find a visual variation of the octagon theme near the center of the wall fresco dedicated to theology. Here rays emanating from the encircled dove form superimposed Greek and Roman crosses:

[Photograph of the Holy Ghost in the theology fresco]

The dove represents the Holy Ghost, the mysterious divine element within ourselves. Pursuing the truth about this element calls for us to pursue the boundless end of deciding well, which in turn calls for us to pursue the truth about this mysterious element. In Roman Catholicism, the boundless end of deciding well is Holy Wisdom (*Hagia Sophia/Logos*).

“On the Poetry Wall”

Appendix C, The Forgotten Role of Octagons, new fifth paragraph, first sentence

“The next most important octagon is that on which Plato and Aristotle stand in the fresco below the philosophy circle:”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

The Philosophy Fresco

The next most important octagon is that on which Plato and Aristotle stand in the wall fresco **dedicated to** philosophy.”

Appendix C, *On the Philosophy Wall*, fifth paragraph

Inserted the subsection title: “***On the Jurisprudence Wall.***”

Appendix C, *On the Poetry Wall*, first paragraph

Changed “**in the visual** center” to “near the center” in the second sentence.

Changed “underlies **the boundless approach to**” to “underlies” in the fourth sentence.

Changed “reason” to “**two-part** reason” and “Holy Wisdom (*Hagia Sophia/Logos*)” to “Holy Wisdom” in the last sentence.

Appendix C, *Black Clouds in Theology*, second to last paragraph

Changed “**the reason of Plato and Aristotle**” to “**philosophy**” in all (2 occurrences).

Changed “**refining everyday thinking**” to “**pursuing Wisdom**” in the fifth sentence.

Changes in Version 2013.06.19

Appendix C, second paragraph

Added the footnote:

“**A bottom-up way of trying to understand the meaning of a work of art is to try to understand the worldview of the artist. In the case of the decoration of the room we now call the Stanza della Segnatura, an immediate problem we face in doing so is knowing who the artists were. The grotesque bands, roundels, and papal symbol in the ceiling contain the general plan for the work. Given that others painted these before Raphael received his commission to complete the work, no one can say with certainty who the author or authors of the plan were. In her scholarly work *Raphael's Stanza della Segnatura, Meaning and Invention* (Cambridge, England: Cambridge University Press, 2002), Christiane Joost-Gaugier speculates that it was the polymath Tommaso Inghirami. A top-down way of trying to understand the meaning of a work of art is to try to understand the work relative to current beliefs about the world. This appendix uses boundlessly pragmatic variations of these two means. The first two sections concern the meaning of the Stanza della Segnatura based on what Inghirami and those around him**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

likely knew about deciding well. The last section concerns the meaning of the work based on what we currently know about deciding well using the multiple-frame approach.”

Appendix C, The Forgotten Role of Octagons, second paragraph, footnote

“⁴ A high-resolution image of the entire ceiling is available online at http://upload.wikimedia.org/wikipedia/commons/9/90/Raphael_-_Ceiling_of_the_Selling_Room.jpg (30 April 2013).”

was changed to:

“⁴ High-resolution photographs of this room are available online at Wikipedia http://en.wikipedia.org/wiki/Raphael_Rooms (19 June 2013) and other locations.”

Appendix C, end

Added the following section:

“A Boundlessly Pragmatic View

To understand this room as a whole, we must consider not only the decoration on the ceiling and four walls, but also the floor. The first thing to notice about the floor is that it is a quadrangle with two parallel sides and two non-parallel sides. Given this asymmetric shape, it is not surprising that the symmetry of the ceiling beyond the oculus is so imperfect. The second thing we must consider is that the floor consists of a mishmash of different patterns separated by plain borders. With the exception of the borders along the non-parallel walls and the cursive borders within the large square with the crossed-keys symbol of the papacy at its center, these borders are either parallel or perpendicular to the two parallel walls. These parallel and perpendicular borders form rectangles that contain locally coherent patterns. By far the most complex of these patterns is the large square containing the symbol of the papacy at its center. From its position relative to the doors, which are on either side of the back wall, this was likely the main work area in the room:

[Photograph of Stanza della Segnatura floor]

With the exception of a symbol that crosses a border midway along the passage connecting to two doors at the back of the room, the fields of patterns defined by the rectilinear borders do not visually relate to each other. What coherence the floor has comes from the borders rather than the patterns of the fields.

“The system of organizing patterns in the floor reflects a rational mindset, a mindset concerned with knowing parts of the world as we currently find them, as opposed to the whole world as we may form it. In contrast, the system of organizing patterns in the ceiling reflects a (truly) beautiful mindset, a mindset concerned with knowing the whole

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

world as we may form it, as opposed to parts of the world as we currently find them. To decide well, we need both types of mindsets.

“We see both mindsets at work in the gestures of Plato and Aristotle just below the center of the philosophy fresco. We also see both at work in the figures closest to the altar just below the center of the theology fresco:

[Photograph of the theology fresco altar]

On the left, church doctors study books and gesture toward the monstrance on the altar, which represents the divine role of the church on earth. On the right, other church doctors gesture or gaze upward toward Wisdom.

“*The Role of Julius II*

Separating these two groups of church doctors is a rectangular altar decorated with a cursive gold pattern on an azure field. Across the center of the pattern is the name Julius (IV LI VS). The heraldic colors of this decoration match those of his family coat of arms (gold oak tree on an azure field). If we look closely at this decoration, we see that the cursive gold pattern is a knot worthy of Gordias. In this context, the knot symbolizes the problem of managing the conflicting goals of the two groups of church doctors. Those on the left aim at promoting known ecclesiastic forms. Those on the right aim at discovering better ecclesiastic forms. To manage this conflict well, Julius II needs to see the bigger picture. This rings true with the image of Julius as Gregory IX on the wall dedicated to jurisprudence, where the square-on-octagon platform on which he sits raises him above those around him. In managing this conflict, Julius supports neither side, but rather the program of the church, which is to bring ever more Wisdom into the world.

“Supporting the claim that Julius II ought to be an enlightened jurist, a supporter of bringing ever more Wisdom into the world are two subtle references to Julius II in the ceiling. The more prominent consists in the twelve wedge-shaped images of his family coat of arms, three around each of the four squares. The variety of sizes and shapes of these twelve images suggests that they are supporting rather than major parts of the ceiling:

[Photograph of the primer mover corner]

The major parts of the ceiling are the octagonal oculus, the four circles, and the four squares. Holding these major parts in place are wide gold bands connected by roundels.⁹ In contrast, narrow bands decorated with the heraldic colors of Julius II hold the twelve wedge-shaped images and the symbols for the four elements in place. If we imagine the gold bands as the load-bearing parts of this structure, the wedges and hourglass composites are fillers that add strength and resilience to the ceiling as a whole. The narrow bands in the heraldic colors of Julius II are the mortar that holds these filler parts in place.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Supporting the claim that Julius II ought to be an enlightened jurist is the name Julius in the arch that spans the wall dedicated to jurisprudence. What makes this symbol especially telling is its location to the left and below the center of the arch as we face the wall:

[Photograph of Jurisprudence arch]

By putting this symbol below the center of this arch rather than at the center of the arch, the authors of the decoration would have Julius II aspire to becoming an ever better jurist rather than an ever better philosopher king. By putting this symbol below the center of this arch rather than at the center of the oculus, the authors would have Julius II aspire to becoming an ever better jurist rather than ever more Christlike.

“We can see a reason why the authors would limit the aspirations of Julius II in the decoration of bands in the load-bearing structure of the ceiling. As we enhance our talent for recognizing patterns, we develop the ability to form in our mind’s eye ever more complex patterns. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we generate geometric patterns, such as those we see in the rectilinear bottom band. In the second, we generate natural patterns, such as those in the middle floral band. In the third, we generate patterns based on images from our unconscious minds, such as those in the golden bands filled with grotesque images that form most of the imaginary load-bearing structure in the ceiling.

“A great danger in pursuing this aspect of enlightenment is confusing beautiful patterns with patterns useful in deciding well. This is the problem of the putto that ought to stand at the center of the edge nearest to fire intruding into the realm of theology. The fact that some patterns from our unconscious mind are useful in deciding well does not mean that all patterns from our unconscious mind are useful in deciding well. We must judge these patterns by how well they ring true with everything we currently know about deciding well. We must then test those that ring true against experience.

“***Apollo and Marsyas***

Reinforcing the claim that the authors would have Julius II become an ever better jurist rather than an ever better philosopher king or ever more Christlike is the scene in the corner rectangle between the circles representing poetry and theology:

[Photograph of Apollo and Marsyas scene]

Here we see the victory celebration of a musical contest between Apollo and an intelligent and disciplined satyr named Marsyas. In this Greek myth, Marsyas challenges Apollo without fully understanding what his challenge entailed. In one version, Apollo not only played his lyre but also sang, which Marsyas was unable to do with his flute in his mouth. In another version, Marsyas initially outplayed Apollo, but then Apollo played his lyre upside down, a feat that Marsyas was unable to match with his flute. As a reward for defeating Marsyas, Apollo was given the right to have his way with

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Marsyas. He chose to have Marsyas skinned alive for the hubris of believing he could perform on the level of the gods.”

“^s The inspiration for looking not only at the ceiling and walls but also at the floor came from *Raphael’s Stanza della Segnatura, Meaning and Invention*.”

“^o At the center of these roundels are what appears to be lotus blossoms, a symbol of refinement, purity, and enlightenment.”

Changes in Version 2013.06.20

Appendix C

Incorporated edits recommended by Sally Osborn into the chapter.

Added the last section to the HTML file.

Appendix C, The Forgotten Role of Octagons, second paragraph

Changed “ceiling, **which is also the highest point in the room**” to “ceiling” in the first sentence.

Changes in Version 2013.06.29

Appendix A, A Modern Intelligence Test, eighth paragraph

Changed “bounded results” to “(bounded) results” in the fourth sentence.

Appendix C, A Boundlessly Pragmatic View, first paragraph

Changed “**we must consider**” to “**to notice**” in the fourth sentence.

Changed “floor” to “floor **as a whole**” in the last sentence.

Appendix C, A Boundlessly Pragmatic View, second paragraph

Changed “(truly)” to “**wholly**” in the second sentence.

Appendix C, A Boundlessly Pragmatic View, last paragraph

Changed “**must**” to “**ought to**” in the second to last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**must then**” to “then **ought to**” in the last sentence.

Appendix C, The Role of Julius II, second paragraph, last five sentences

“The major parts of the ceiling are the octagonal oculus, the four circles, and the four squares. Holding these major parts in place are wide gold bands connected by roundels.⁹ In contrast, narrow bands decorated with the heraldic colors of Julius II hold the twelve wedge-shaped images and the symbols for the four elements in place. If we imagine the gold bands as the load-bearing parts of this structure, the wedges and hourglass composites are fillers that add strength and resilience to the ceiling as a whole. The narrow bands in the heraldic colors of Julius II are the mortar that holds these filler parts in place.”

“⁹ At the center of these roundels are what appears to be lotus blossoms, a symbol of refinement, purity, and enlightenment.”

were changed to:

“We can easily imagine that the gold bands around the oculus, four circles, and four squares are the load-bearing parts of the ceiling structure and the hourglass composites are fillers that add strength and resilience to the ceiling as a whole. We can even imagine that the roundels join the load-bearing parts together. At the center of each of these roundels is what appears to be a lotus blossom, a symbol of purity in an impure world. Further, the narrow bands decorated with the heraldic colors of Julius II hold the filler parts in place. The decoration on these bands is an unknotted version of the altar pattern, a symbol of pursuing Wisdom well.”

Changes in Version 2013.07.02

The following changes were prompted by the need to convert the book into Kindle format.

Entire work (Kindle format)

Replaced bullet-point lists with Kindle-friendly formatting. Replaced unprintable special characters with approximates. Reduced size of indentations of paragraphs and block quotes. Changed spacing around block quotes. Changed size of some images. Added copyright page. Changed footnotes to endnotes. Added mistakenly erased sentence in the last paragraph of the acknowledgments on June 7, 2013.

Entire work (all formats)

Checked all twenty confirmed Internet links and changed their dates to (2 July 2013).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Acknowledgments, last paragraph (HTML only)

Inserted sentence mistakenly erased on June 7, 2007:

“John Harris pointed out people and habits worth imitating.”

Chapter 8, Eudaimonia, last paragraph, first footnote

“For more about Plato’s boundless view of reason, see Appendix C. Note that in likening governing our minds well to governing ourselves well, Plato also provided us with a bounded view of governing our minds well: In an ideal state, all citizens work together for the good of the state. In an ideal human mind, all parts work together for the good of the human. As we have seen, we ought to take the boundless view: In the ideal state, all citizens work together in deciding well. In the ideal human mind, all parts work together in deciding well.”

was changed to:

“Plato also provided us with a bounded view of governing our minds well in likening governing our minds well to governing ourselves well: In an ideal human mind, all parts work together for the good of the human. In an ideal state, all citizens work together for the good of the state. As we have seen, we ought to take the boundless view: In the ideal human mind, all parts work together in deciding well. In the ideal state, all citizens work together in deciding well. For more about Plato’s boundless view of reason and how it relates to governing our minds well, see Appendix C.”

Appendix A, title quotes, second quote

““In mathematics the art of proposing a question must be held of higher value than solving it.” — *Georg Cantor*”

“Cantor, Georg, “De aequationibus secundi gradus indeterminatis” (Doctoral dissertation, University of Berlin, 1867).”

was deleted.

Appendix C, *Apollo and Marsyas*, last paragraph, end

Added the sentence:

“Apollo then put the hide of Marsyas to use as a wineskin.”

Changes in Version 2013.07.03

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

The following changes were prompted by the need to convert the book into Kindle format.

Entire work, all formats

Removed section headings immediately after chapter headings in all chapters and appendices.

Chapter 1, Seeing Through Apparent Miracles, first paragraph

Changed “**is less costly**” to “**costs less**” in all (6 occurrences in the first three bullet points).

Chapter 4, Refining Natural Science, title

Changed title to “**Refining Everyday Thinking.**”

Changes in Version 2013.07.12

Preface, tenth paragraph

Changed “approach” to “**complex** approach” in the first sentence.

Chapter 1, Values, last paragraph

“The process of deciding well calls for refining the process of deciding well. To refine this process well, we need a means of breaking it down into wieldier problems. One way involves breaking down **Wisdom into universally useful resources for deciding well that we can never have in excess. We may call these aspects of Wisdom *boundless factors of deciding well***. Taken together, the pursuits of these boundless factors form a **complex** model of deciding well. We can use this model to judge whether the problems we find “ring true” with all that we currently know about deciding well. If they do, we have found a “beautiful” problem to solve.”

was changed to:

“**We may think of the Truth as being a factor of deciding well that we can never have in excess. We may call such factors *boundless factors of deciding well***.”

“The process of deciding well calls for refining the process of deciding well. To refine this process well, we need a means of breaking it down into wieldier problems. One way involves breaking down **the process of deciding well into the processes of pursuing the boundless factors of deciding well**. Taken together, the pursuits of these boundless factors form a ***multiple-frame*** model of deciding well. We can use this **complex** model

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

to judge whether the problems we find “ring true” with all that we currently know about deciding well. If they do, we have found a “beautiful” problem to solve.”

Appendix B, Temporal Details, first paragraph, footnote, last two sentences

“Today, these tools fit so neatly into the Toyota system that they might have emerged from it. In the near future, additive manufacturing tools (3D printers) will begin to replace traditional tools. As they do, Toyota factories will become even leaner.”

were changed to:

“It should accommodate additive manufacturing tools and other new technology as easily.”

Appendix C, introduction, last paragraph, footnote

“A bottom-up way of trying to understand the meaning of a work of art is to try to understand the worldview of the artist. In the case of the decoration of the room we now call the Stanza della Segnatura, an immediate problem we face in doing so is knowing who the artists were. The grotesque bands, roundels, and papal symbol in the ceiling contain the general plan for the work. Given that others painted these before Raphael received his commission to complete the work, no one can say with certainty who the author or authors of the plan were. In her scholarly work *Raphael's Stanza della Segnatura, Meaning and Invention* (Cambridge, England: Cambridge University Press, 2002), Christiane Joost-Gaugier speculates that it was the polymath Tommaso Inghirami. A top-down way of trying to understand the meaning of a work of art is to try to understand the work relative to current beliefs about the world. This appendix uses boundlessly pragmatic variations of these two means. The first two sections concern the meaning of the Stanza della Segnatura based on what Inghirami and those around him likely knew about deciding well. The last section concerns the meaning of the work based on what we currently know about deciding well using the multiple-frame approach.”

was changed to:

“The key to understanding the Stanza della Segnatura is its ceiling, which was well underway before Raphael received his commission to complete the work. In her scholarly work *Raphael's Stanza della Segnatura, Meaning and Invention* (Cambridge, England: Cambridge University Press, 2002), Christiane Joost-Gaugier speculated that Tommaso Inghirami was its chief designer. From the boundless view, we may base our interpretations of art either on what its creators knew or on what we currently know about deciding well. The first two sections of this appendix uses the former and the third uses the latter.”

Appendix C, Black Clouds in Theology, fourth paragraph, second sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From this view, we ought to judge our beliefs by how useful they are in pursuing Wisdom.”

was deleted.

Merged paragraph with the second paragraph.

Appendix C, Black Clouds in Theology, last paragraph

“From the boundless view of deciding well, which is an imaginary view of the room as a whole, this contradiction concerns the problem of when we ought to use bounded models of the world to help us find problems to solve. We ought to do so only when the added benefit of using the boundless model of deciding well is not worth the extra cost of using it. The wiser we are, the less frequently this happens.”

was moved to the end of the **A Boundlessly Pragmatic View** and changed to:

“The black clouds in theology concern the problem of when we ought to use bounded models of the world to help us find problems to solve. We ought to do so only when the added benefit of using the boundless model of deciding well is not worth the extra cost of using it. The wiser we are, the less frequently this happens.”

Appendix C, A Boundlessly Pragmatic View, title

Changed title to “A Boundless View of the Whole.”

Changes in Version 2013.07.16

Entire document (Word version)

Added appendix title to all footnotes referencing appendices (5 occurrence). Removed section titles immediately following chapter or appendix title from all chapters and appendices. Renumbered Table of Contents. These two changes make the Word version more like the Kindle version.

Chapter 1, *Ever More Complete Multiple-Frame Models*, second paragraph, first sentence

“Deciding well calls for us to fit our beliefs together based on the symmetry of deciding well.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Pursuing any boundless factor well calls for us to decide well, which in turn calls for us to pursue all boundless factors well. For example, pursuing the Truth calls for us to decide well, which in turn calls for us to pursue Happiness. Similarly, pursuing Happiness calls for us to decide well, which in turn calls for us to pursue the Truth. Deciding well calls for us to fit our beliefs together based on **this** symmetric structure of deciding well.”

Chapter 4, *Academic Fields*, fourth paragraph, footnote

In the Kindle version, promoted the endnote to a parenthesized sentence in the body of the text:

“(For more about game theory and biological evolution, see the chapter on competing well.)”

In other versions, changed “**seventh** chapter” to “chapter **on competing well**” in the first sentence.

Chapter 5, *The Explicit Experiment*, second paragraph

Removed quotation marks from block quote.

Chapter 6, Pursuing Eternal Oneness, last paragraph

Changed “**Religions that help us live well**” to “**Worldly religions**” in the second and last sentences (2 occurrences).

Chapter 7, *E-M Theory*, first paragraph

Changed “**for six years.**” to “.” in the third sentence.

Changed “**a widely used manual** on aerial combat” to “**the first text** on aerial combat **tactics, which became the tactics manual for air forces around the world**” in the fourth sentence.

Chapter 7, *E-M Theory*, second paragraph

Changed “inferior” to “**often** inferior” in the second sentence.

Changed “**people**” to “**pilots**” and “**they**” to “**engineers**” in the first sentence.

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote, end

Added the sentence:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“For more about sophistry and its relation to philosophy, see Appendix C (Renaissance Art).”

Appendix C, *On the Philosophy Wall*, first paragraph

Changed “reasoning” to “two-part reasoning” in the last sentence.

Appendix C, *On the Jurisprudence Wall*, last paragraph

Changed “to learn” to “to become people by choosing to learn” in the last sentence.

Changes in Version 2013.07.22

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote, first three sentences

“Boyd saw patterns in the way we compete to live well. He wanted to explain these patterns using a decision-cycle model that included learning-by-doing. Regrettably, he based his model on modern interpretations of biological evolution, quantum mechanics, and Gödel’s incompleteness theorems. We see the resulting sophistry most clearly in his essay *Destruction and Creation*. For more about sophistry and its relation to philosophy, see Appendix C (Renaissance Art).”

were changed to:

“Unlike the strategic decision-cycle model put forth in the preface of this book, OODA loop decision-cycles do not explicitly include learning from experience. Boyd addressed this limitation by adding learning to the OODA-loop orientation step. This solution allowed him to apply his analysis on all problem scale levels that do not consider changing the OODA loop itself, an action he believed would violate Gödel’s incompleteness theorems. For more about Boyd’s modern-biological/modern-dialectical approach to learning, read his essay *Destruction and Creation*.”

Chapter 8, *Eudaemonia*, last paragraph, first footnote

Changed “citizens” to “people” in the third sentence.

Changed “reason and how it relates to governing our minds well” to “and” in the last sentence.

Appendix C, *The Role of Julius II*, third paragraph

Changed “the hourglass composites are fillers that add” to “that the hourglass composites are fillers adding” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2013.07.22

Chapter 3, Overcoming Constraints in Deciding Well, last paragraph

Changed “invent” to “invent **or discover**” and “people” to “people **invent or discover**” in the second sentence.

Chapter 3, The Elephant in the Room, last paragraph

Changed “**for** certain” to “**with complete** certainty” in the second sentence.

Chapter 7, OODA Loop Analysis, second paragraph, eighth and ninth sentences

“Further, it gave them **more options. Unlike American P-38 pilots fighting against Japanese pilots in slower, but more maneuverable Zero fighter planes a decade earlier, F-86 pilots fighting MiG-15 pilots were not limited to a single tactic.**”

were changed to:

“Further, it gave them **the time to consider how best to force their opponents to make mistakes.**”

Chapter 7, *Boyd’s Grand Strategy*, last paragraph, footnote

Changed “problem scale” to “problem-scale” in the third sentence.

Appendix C, *On the Theology Wall*, last paragraph

Changed “**In** Roman Catholicism” to “**For** Roman Catholics” in the last sentence.

Appendix C, *On the Poetry Wall*, first paragraph

Changed “**diatonic** (eight-note, repeating-octave scale) melodies” to “**an** eight-note, repeating-octave scale melody” in the third sentence.

Appendix C, A Boundless View of the Whole, last paragraph, last three sentences

“**The black clouds in theology concern the problem of when we ought to use bounded models of the world to help us find problems to solve. We ought to do so only when the added benefit of using the boundless model of deciding well is not worth the extra cost of using it. The wiser we are, the less frequently this happens.**”

were deleted.

Appendix C, *The Role of Julius II*, fourth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**ever more complex** patterns” to “patterns **that are ever more imaginative**” in the second sentence.

Appendix C, *The Role of Julius II*, last paragraph, second sentence

“**This is the problem of the putto that ought to stand at the center of the edge nearest to fire intruding into the realm of theology.**”

was deleted.

Changes in Version 2013.07.25

Appendix C, *Black Clouds in Theology*, last paragraph

Changed “**Celestial**” to “**From this artistic view of the view of art, celestial**” in the third sentence.

Changed “**some** people” to “people perceive” in the fourth sentence.

Changed “**Celestial**” to “**From the artistic view of the view of philosophy, celestial**” in the last sentence.

Appendix C, *The Role of Julius II*, second paragraph

“Reinforcing the claim that Julius II ought to be an enlightened jurist , **a supporter of bringing ever more Wisdom into the world**, are two subtle references to Julius II in the ceiling. The more prominent consists in the twelve wedge-shaped images of his family coat of arms, three around each of the four squares. The variety of sizes and shapes of these twelve images suggests that they are **supporting rather than** major parts of the ceiling:”

[Image of Urania corner of the ceiling]

“We can easily imagine that the gold bands around the oculus, four circles, **and four squares are the load-bearing parts of the ceiling structure and that the hourglass composites are fillers adding strength and resilience to the ceiling as a whole. We can even imagine that the roundels join the load-bearing parts together. At the center of each of these roundels is what appears to be a lotus blossom, a symbol of purity in an impure world. Further, the narrow bands decorated with the heraldic colors of Julius II hold the filler parts in place.** The decoration on these bands is an unknotted version of the altar pattern, **a symbol of pursuing Wisdom well.**”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Reinforcing the claim that Julius II ought to be an enlightened jurist are two subtle references to Julius II in the ceiling. The more prominent consists in the twelve wedge-shaped images of his family coat of arms, three around each of the four squares. The variety of sizes and shapes of these twelve images suggests that they are not major parts of the ceiling:”

[Image of Urania corner of the ceiling]

“We can easily imagine that the gold bands around the oculus, four circles, four squares, and lotus-blossom roundels are the load-bearing parts of the ceiling structure. Adding strength and resilience to this structure are twelve wedge and four hourglass fillers. Holding these “worldly” fillers in place are narrow bands decorated with the heraldic colors of Julius II. The decoration on these bands is an unknotted version of the altar pattern.”

Appendix C, *The Role of Julius II*, third paragraph

Changed “Supporting the claim that Julius II ought to be an enlightened jurist” to “The less prominent reference” in the first sentence.

Appendix C, *The Role of Julius II*, third paragraph, last two sentences

“By putting this symbol below the center of this arch rather than at the center of the arch, the authors of the decoration would have Julius II aspire to becoming an ever better jurist rather than an ever better philosopher king. By putting this symbol below the center of this arch rather than at the center of the oculus, the authors would have Julius II aspire to becoming an ever better jurist rather than ever more Christlike.”

were changed to:

“By putting this symbol below the center of this arch rather than at the center of the oculus, the authors of this room would have Julius II aspire to become an ever better jurist rather than ever more Christlike.”

Appendix C, *The Role of Julius II*, fourth paragraph

Changed “reason why the authors would limit the aspirations of Julius II” to “reason for this” in the first sentence.

Changed “decoration of the bands in the load-bearing structure” to “decorative bands of the imaginary load-bearing structure” in the first sentence.

Changed “in our mind’s eye patterns that are ever more imaginative” to “imaginative patterns in our mind’s eye” in the second sentence.

Changed “load-bearing structure in the ceiling” to “structure” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, *The Role of Julius II*, last paragraph

“A great danger in pursuing this aspect of enlightenment is confusing beautiful patterns with patterns useful in deciding well. We ought to judge these patterns by how well they ring true with everything we currently know about deciding well. We then ought to test those that ring true against experience. The fact that some patterns from our unconscious mind are useful in deciding well does not mean that all patterns from our unconscious mind are useful in deciding well.”

was changed to:

“A great danger in pursuing this aspect of enlightenment is confusing patterns that ring true with what we currently believe with patterns that are truly useful in deciding well. We ought to judge patterns by how well they ring true with everything we currently know about deciding well. We then ought to test those that ring true against experience.”

Appendix C, *Apollo and Marsyas*, first paragraph

Changed “an ever better philosopher king or ever more Christlike” to “ever more Christlike” in the first sentence.

Changed “was given” to “had” in the third to last sentence.

Changes in Version 2013.07.27

Chapter 3, introduction, last paragraph, footnote

“² For more about the relation between beauty and enlightenment, see Appendix C (Renaissance Art).”

was deleted.

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, fourth paragraph, end

Added the footnote:

“⁸ This interpretation of quantum mechanics contradicts physicist John Bell’s claim that if hidden variables that explain entanglement exist, they are not local. Decades of experiments have failed to disprove this claim. Disproving it would damage the boundlessly pragmatic argument for free will, which depends on the claim that the existence of free will rings true with all that we currently know about pursuing the boundless end of deciding well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 7, *Boyd's Grand Strategy*, last paragraph, footnote

Changed “itself, an action he believed would violate Gödel’s incompleteness theorems” to “itself. Applying learning to the OODA loop itself would expose the incompleteness of his decision-cycle theory” in the third sentence.

Appendix C, The Forgotten Role of Octagons, second paragraph

Changed “From the boundless view, the” to “The” in the fifth sentence.

Appendix C, The Forgotten Role of Octagons, last paragraph

Changed “the boundless view” to “a Roman Catholic view” in the last sentence.

Changed “the means of learning ever more about the world (Wisdom)” to “Holy Wisdom (*Hagia Sophia/Logos*)” in the last sentence.

Appendix C, Black Clouds in Theology, first paragraph

Changed “morning twilight” to “dawn” in the last sentence.

Changes in Version 2013.08.06

Preface, eighth paragraph

Changed “as parts of” to “as” in the second sentence.

Chapter 1, Choosing Frames Well, first paragraph, footnote

Changed “boundless concept” to “concept” in the second sentence.

Chapter 1, *Useful Frames*, entire section

“*Useful Frames*”

Addressing the problem of choosing frames well by deciding well calls for understanding what makes frames useful in deciding well. Useful frames are frames that help us achieve our ends. Some ends concern events. Because events have bounds in time, we may call these *bounded ends*. Winning a basketball game is a *bounded* end. Other ends concern processes. Because processes have no bounds in time, we may call these *boundless ends*. Playing basketball well is a *boundless* end.

“In pursuing the boundless end of deciding well, we benefit from frames that help us solve problems that have bounded ends. We may call these *bounded frames*. We also

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

benefit from frames that help us find problems to solve. We may call these *boundless frames*.

“**Bounded** and **boundless** frames differ in their concepts of *excellence in means*. From a **bounded** frame, excellence in means is excellence in solving problems. **We may call this efficiency. We base this concept of excellence in means on what we know and on what we may learn that is useful for solving the bounded problem we have chosen to solve.** A formal decision *event* consists of formulating solutions to the given problem, evaluating these solutions, choosing a solution, and implementing the chosen solution.

“In contrast, from a boundless frame, excellence in means is not only **excellence in solving problems**, but also excellence in choosing problems to solve. **We may call excellence in choosing problems to solve effectiveness.**⁶ **We base this concept of excellence in means on what we know and what we may learn that is useful in addressing the boundless problem we have chosen to address.** A formal decision *process* is the endlessly repeating cycle of (1) finding a **bounded** problem to solve that appears to be in line with our **boundless** end, (2) formulating various solutions to this problem, (3) evaluating these solutions, (4) choosing a solution, (5) implementing the chosen solution, and (6) learning from the experience. **Given our limited knowledge relative to the infinitely large problem we face, we cannot avoid making mistakes. When we make mistakes, we embed new mistakes into, or reinforce existing mistakes in, our networks of knowledge-in-use. These networks include our markets, technologies, legal systems, languages, sciences, and cultures. If we are wise, we learn from our mistakes. If we are wise, we learn to muddle forward ever more wisely.**”

was changed to:

“**Temporal and Timeless Frames**

Addressing the problem of choosing frames well by deciding well calls for understanding what makes frames useful in deciding well. Useful frames are frames that help us achieve our ends. Some ends concern events. Because events have bounds in time, we may call these *temporal ends*. Winning a basketball game is a **temporal** end. **We may call frames that help us achieve temporal ends *temporal frames*.**

“Other ends concern processes. Because processes have no bounds in time, we may call these *timeless ends*. Playing basketball well is a **timeless** end. **We may call frames that help us achieve timeless ends *timeless frames*.**

“**Temporal** and **timeless** frames differ in their concepts of *excellence in means*. From a **temporal** frame, excellence in means is *efficiency*, excellence in solving **given** problems. A formal decision *event* consists of formulating solutions to the given problem, evaluating these solutions, choosing a solution, and implementing the chosen solution.

“In contrast, from a **timeless** frame, excellence in means is not only *efficiency*, but also *effectiveness*, excellence in choosing problems to solve.⁶ A formal decision *process* is the endlessly repeating cycle of (1) finding a **temporal** problem to solve that appears to

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

be in line with our **timeless** end, (2) formulating various solutions to this problem, (3) evaluating these solutions, (4) choosing a solution, (5) implementing the chosen solution, and (6) learning from the experience.”

Chapter 1, *The EOQ/RTS Example*, first paragraph

Changed “**bounded** and **boundless** frames” to “**temporal** and **timeless** frames” in the first sentence.

Changed “**bounded**” to “**temporal**” in the second sentence.

Changed “**boundless**” to “**timeless**” in the last sentence.

Chapter 1, *The EOQ/RTS Example*, third paragraph

Changed “**bounded**” to “**temporal**” in the first sentence.

Chapter 1, *The EOQ/RTS Example*, fourth paragraph

Changed “**boundless**” to “**timeless**” in the second sentence.

Chapter 1, *Seeing Through Apparent Miracles*, third paragraph

Changed “**boundless**” to “**timeless**” in the last sentence.

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Changed “**bounded**” to “**temporal**” in the first sentence.

Changed “**boundless**” to “**timeless**” in the fourth sentence.

Changed “**the values we use to help us decide**” to “**boundless frames**” in the last sentence.

Chapter 1, *Values*, title and first three paragraphs

“**Boundless Values**”

We have seen how the **boundless** concept of deciding well can help us find better **temporal** (temporally bounded) problems to solve. We can also use it to help us find better **timeless** (temporally boundless) problems to solve. This calls for distinguishing between bounded and boundless values. Bounded values are values we base on what we currently know. Boundless values are values we base on what we need to know in order to pursue boundless ends well, which, as we shall see, are aspects of the boundless end of deciding well.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In discussing **bounded and** boundless **values**, we can avoid much tedium and confusion by capitalizing **boundless values**. Using this convention, we may call the boundless end of deciding well *Wisdom* and the boundless end of believing well *the Truth*. If we define ‘religion’ to mean the pursuit of linking (or re-linking) with something infinitely greater than ourselves and ‘theism’ to mean belief in the existence of the divine, this convention has religious overtones that may or may not be theistic.

“A major difference between bounded and boundless values is their source. From a **bounded** view of deciding well, people base their values on what they currently know. The **bounded** concept of deciding well does not include learning ever more about values. People must look beyond the problem at hand to find sources for their values. These outside sources include such things as theistic texts, political ideologies, and moral philosophies. In contrast, from a **boundless** view of deciding well, we base our values on what we need to know in order to pursue boundless ends well. **We learn ever more about these values by pursuing the boundless end of believing well (the Truth).**¹⁰”

“¹⁰ **Note that** taking a boundless view of deciding well does not call for us to abandon the study of texts. It only calls for us to interpret texts in the light of pursuing Wisdom. **Note too** that the change in case from the third person to the first person is not a mistake. **As we shall see**, we cannot separate the boundless problems we face from the boundless problems all other people face.”

were changed to:

“**The Boundless Model**

In framing the world, we use bounds to separate what lies within the frame from what lies outside it. As we saw in the EOQ/RTS model, these bounds can blind us to finding better problems to solve. This holds true not only for temporal frames, but also for timeless ones: playing basketball well does not include swimming well.

“If we believe that thinking reasonably is the same as thinking logically, then all frames are bounded. When we reduce our sensations of the world to a logical model, we always leave something out of our model. There are no boundless frames. On the other hand, if we believe that thinking reasonably is more than thinking logically, we may combine timeless frames to form a reasonable model of deciding well that when applied to itself an infinite number of times leaves nothing out. As aspects of this boundless model, these timeless frames are boundless.

“In discussing **the ends of** boundless **frames**, we can avoid much tedium and confusion by capitalizing **them**. Using this convention, we may call the boundless end of deciding well *Wisdom* and the boundless end of believing well *the Truth*. If we define ‘religion’ to mean the pursuit of linking (or re-linking) with something infinitely greater than ourselves and ‘theism’ to mean belief in the existence of the divine, this convention has religious overtones that may or may not be theistic.¹⁰

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The Truth and Wisdom

We learn ever more about pursuing the boundless end of deciding well (Wisdom) by pursuing the boundless end of believing well (the Truth).”

“¹⁰ We may think of these boundless ends as values. A major difference between bounded and boundless values is their source. From a modern view of deciding well, people base their values on what they currently know. The modern concept of deciding well does not include learning ever more about values. People must look beyond the problem at hand to find sources for their values. These outside sources include such things as theistic texts, political ideologies, and moral philosophies. In contrast, from the boundless view of deciding well, we base our values on what we need to know in order to pursue the boundless end of deciding well (Wisdom). Taking a boundless view of deciding well does not call for us to abandon the study of texts. It only calls for us to interpret texts in the light of pursuing Wisdom. Note that the change in case from the third person to the first person is not a mistake. We cannot separate the boundless problems we face from the boundless problems all other people face.”

Chapter 1, The Truth and Wisdom, fourth paragraph, footnote

Changed “thoroughly bounded” to “temporal” in the last sentence.

Chapter 1, The Truth and Wisdom, fifth paragraph

Changed “bounded” to “modern” in the first sentence.

Changed “a boundless view” to “the boundless view of believing well” and “we pursue” to “end of believing well (the Truth)” in the third sentence.

Chapter 3, Contemplating the Way Forward, third paragraph

Changed “boundless” to “timeless” in the last sentence.

Chapter 3, Contemplating the Way Forward, last paragraph

Changed “boundless” to “timeless” in the last sentence.

Chapter 3, Overcoming Constraints in Deciding Well, last paragraph, footnote

Changed “boundless” to “timeless” in the last sentence.

Chapter 3, Public Order, last paragraph

Changed “bounded (current)” to “current” in the fifth sentence.

Changed “bounded public order” to “current public order” in the fourth and fifth sentences.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**fabric of civilization, the interwoven** networks” to “**networks**” in the fifth sentence.

Chapter 3, *A Boundlessly-Pragmatic Interpretation of Quantum Mechanics*, seventh paragraph

“To decide well, we need not only bounded descriptions of the world to help us solve given problems, but also boundless descriptions of the world to help us find better problems to solve. The complex approach to deciding well put forth in this work provides us not only with bounded descriptions of the world to help us solve given problems, but also with coherent sets of boundless descriptions of the world to help us find better problems to solve. These multiple-frame models concern not the world as we currently find it, but rather the world as we may form it.”

was deleted.

Chapter 4, *Self-Similarity*, last paragraph

Changed “*knowledge-in-use*” to “*knowledge-in-use in our markets, technologies, legal systems, languages, and cultures*” in the last sentence.

Chapter 4, *Academic Fields*, first paragraph

Changed “**boundless**” to “**timeless**” in the third sentence.

Chapter 4, *Academic Fields*, second paragraph

Changed “**bounded** categories” to “categories” in the fourth sentence.

Chapter 4, *Refining Finding Problems to Solve*, first paragraph

Changed “; **that is, into our markets, technologies, legal systems, languages, and cultures.**” to “.” in the second sentence.

Chapter 5, *The Explicit Experiment*, second paragraph

Changed “**boundless** experiment” to “**political** experiment” in the fourth sentence.

Chapter 5, *The Explicit Experiment*, last paragraph, footnote

Changed “**boundless** political experiment” to “political experiment” in the first sentence.

Chapter 5, *Pursue Boundless, not Bounded Order*, title

Changed title to “*Pursue Boundless, not Current Order.*”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, *Pursue Boundless, not Current Order*, first paragraph

Changed “**bounded**” to “**current**” in the second and third sentences (2 occurrences).

Changed “civilization **as a whole is threatened**” to “**turbulence threatens** civilization” in the second sentences.

Chapter 6, introduction, first paragraph

Changed “**boundless**” to “**timeless**” in the last sentence.

Chapter 6, Being Needs, first paragraph

Changed “**boundless**” to “**timeless**” in the second sentence.

Chapter 6, *Pursuing Eternal Oneness*, first paragraph

Changed “**boundless**” to “**timeless**” in the second sentence.

Chapter 7, *OODA Loop Analysis*, third paragraph

Changed “**boundless**” to “**timeless**” in all (3 occurrences).

Chapter 7, *Boyd's Grand Strategy*, last paragraph

Changed “view” to “**timeless view**” in the last sentence.

Chapter 7, The Scope of Biological Evolution, last paragraph

Changed “**a boundless view**” to “**the boundless view**” in the last sentence.

Chapter 8, introduction, fourth paragraph

Changed “**boundless**” to “**timeless**” in all (5 occurrences).

Chapter 8, introduction, fifth paragraph

Changed “pursuing the boundless end of deciding well **by pursuing the boundless factors of deciding well**” to “pursuing the boundless end of deciding well” in the first sentence.

Changed “**(coherent sets of) single-frame**” to “**multiple-frame**” in the third sentence.

Chapter 8, introduction, sixth paragraph

Changed “**any group of these**” to “these” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “stop” to “halt” in the last sentence.

Chapter 8, introduction, sixth paragraph, last footnote

Changed “boundless” to “timeless” in the first three sentences (2 occurrences).

Chapter 8, Eudaemonia, first paragraph

Changed “Pursuing the boundless end of deciding well using the boundless approach” to “Pursuing the boundless end of deciding well” in the first sentence.

Appendix C, introduction, last paragraph, footnote, last two sentences

“From the boundless view, we may base our interpretations of art either on what its creators knew or on what we currently know about deciding well. The first two sections of this appendix use the former and the third uses the latter.”

were changed to:

“The inspiration to consider the decoration of the room as a whole, including the floor, came from this book.”

Appendix C, The Forgotten Role of Octagons, last paragraph, last sentence

“From a Roman Catholic view, this Tantalean image represents the mission of learning ever more about both the world and Holy Wisdom (*Hagia Sophia/Logos*).”

was changed to:

“From the boundless view, this Tantalean image represents the mission of learning ever more about both the world and Wisdom.”

Appendix C, Black Clouds in Theology, first paragraph, first two sentences

“From a modern view, there exists an internal contradiction within the Roman Catholic pursuit of Holy Wisdom. We can see the metaphorical storm this conflict creates in the black clouds underlying the figure of Theology:”

were changed to:

“There exists a dispute within the Roman Catholic pursuit of Holy Wisdom. We can see the metaphorical storm this dispute creates in the black clouds underlying the figure of Theology:”

Appendix C, Black Clouds in Theology, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**contradiction**” to “**dispute**” in the first sentence.

Appendix C, Black Clouds in Theology, last paragraph, first four sentences

“In the theology fresco, this **contradiction** concerns a conflict between **art** and philosophy. We can see this conflict in the celestial figures in the upper left of the fresco. From the view of **art**, people are the measure of all things, of the existence of the things that are and the non-existence of the things that are not. **From this artistic view of the view of art, celestial beings are as realistically portrayed** as the historical figures in the philosophy fresco:”

were changed to:

“In the theology fresco, this **dispute** concerns a conflict between **poetry** and philosophy. We can see this conflict in the celestial figures in the upper left of the fresco. From the view of poetry, people are the measure of all things, of the existence of the things that are and the non-existence of the things that are not. **Celestial beings appear to be as real** as the historical figures in the philosophy fresco:”

Appendix C, Black Clouds in Theology, last paragraph

Changed “**From the artistic view of the view of philosophy, celestial**” to “**Celestial**” in the last sentence.

Appendix C, On the Poetry Wall, first paragraph

Changed “this **octagon**” to “this” in the first sentence.

Appendix C, A Boundless View of the Whole, first paragraph, footnote

“**The inspiration to look not only at the ceiling and walls but also at the floor came from Raphael’s Stanza della Segnatura, Meaning and Invention.**”

was deleted.

Changes in Version 2013.08.07

Chapter 1, The Truth and Wisdom, second to last paragraph

“**We may think of the Truth as being a factor of deciding well that we can never have in excess. We may call such factors *boundless factors of deciding well.***”

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *The Truth and Wisdom*, last paragraph, second sentence

“One way involves breaking down the process of deciding well into the processes of pursuing **the** boundless factors **of deciding well.**”

was changed to:

“One way involves breaking down the process of deciding well into the processes of pursuing **universally useful knowledge resources that we can never have in excess. We may call these knowledge resources *boundless factors of deciding well*. The boundless end of believing well (the Truth) is one such** boundless factor.”

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, last paragraph

Changed “certainty equivalent” to “**discounted** certainty equivalent” in all (2 occurrences).

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, last paragraph, footnote, end

Added the sentences:

“**Discounting is a method of accounting for the time value of (the use of) money. In our age of low-cost computing, the best means of discounting certainty equivalents uses a yield curve rather than a single interest rate.**”

Appendix C, *On the Jurisprudence Wall*, first paragraph

Changed “**everyday** living” to “living **well**” in the fourth sentence.

Added “**the corner touching the philosophy wall,**” to the fifth sentence.

Added “**the corner touching the theology wall,**” to the last sentence.

Changes in Version 2013.08.08

Chapter 1, *Choosing Frames Well*, last paragraph, footnote

Changed “**Patterns**” to “**Forms**” in the last sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph

Moved footnote to last section of preceding subsection.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “three” to “four” in the first sentence.

Changed “three steps” to “four steps” in the first sentence.

Added the following sentence to the end of the paragraph:

“The last is reconciling the model as best as we can, given our current ignorance of not only the current state of the world, but also of all possible future states of the world.¹⁴”

“¹⁴ More accurately, this step concerns reconciling these frames as best as we can do given our current ignorance of not only the current quantum state of the world, but also all future quantum states of the world. Our ignorance includes not knowing whether time is truly absolute, relativistic, or something else.”

Appendix A, title

Changed title to “Science of Forms.”

Appendix A, Indispensable Patterns, title

Changed “Patterns” to “Forms” in the title.

Appendix A, Indispensable Forms, last paragraph

Changed “patterns” to “forms (patterns)” and “*science of patterns*” to “*science of forms*” in the first sentence.

Changed “a pattern problem” to “an information problem” in the second sentence.

Appendix C, The Forgotten Role of Octagons, second to last paragraph

Changed “fifth element” to “mysterious fifth element” in the first sentence.

Moved paragraph (including photograph) to the end of the section.

Changes in Version 2013.08.10

Preface, fourth from the last paragraph

Changed “useful” to “wise” in the first sentence.

Chapter 1, *The Truth and Wisdom*, sixth paragraph

Changed “modern view” to “modern view of believing well” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “boundless view of **believing**” to “boundless view of **deciding**” in the third sentence.

Chapter 1, *The Truth and Wisdom*, last paragraph

Changed “**this complex** model” to “**these multiple-frame** models” in the second to last sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph

Changed “**multiple-frame** “view” of this approach” to “view of this **boundless** approach to **deciding well**” in the last sentence.

Appendix A, introduction, second to last paragraph, third and fourth sentences

“To do so, **we modify the method that displays objects with character Y. Specifically,** we replace the function that replaces the rightmost vertex and sides with a function that replaces all points to the right of the center of the circumscribing circle.”

were changed to:

“To do so, we replace the function that replaces the rightmost vertex and sides with a function that replaces all points to the right of the center of the circumscribing circle.”

Appendix A, introduction, first paragraph, second sentence

“**We are given the first series of two objects and the first object in the second series:**”

was deleted. (Period changed to a colon in the first sentence.)

Appendix A, *The Big Picture*, second paragraph

Changed “**to be found by**” to “**to make ourselves known to**” in the fourth sentence.

Appendix C, *The Role of Julius II*, second paragraph

Changed “bands around the oculus, four circles, four squares, and **lotus-blossom roundels**” to “**lotus-blossom roundels and** bands around the oculus, four circles, four squares, and **arched walls**” in the fourth sentence.

Changes in Version 2013.08.12

Chapter 2, *Taxation*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “live” to “live **well**” in the sixth sentence.

Changed “test” to “test **well**” in the last sentence.

Chapter 3, Contemplating the Way Forward, third paragraph

Changed “**can** use **what we believe is the best**” to “may use **any**” in the fourth sentence.

Chapter 3, Contemplating the Way Forward, last paragraph

Changed “ **can** use **what we believe is the best**” to “may use **any**” in the fourth sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, first paragraph

Changed “**as mathematicians define this process**” to “ ” in the first and last sentences (2 occurrences).

Chapter 3, *Overcoming Constraints in Deciding Well*, first paragraph, footnote

Added the following sentence at the beginning of the footnote:

“**More accurately, we can draw some conclusions about overcoming constraints in pursuing Wisdom from the much simpler case of overcoming constraints in computing the value of π as modern mathematicians define this process.**”

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph

Changed “**public approach**” to “**boundless approach**” in the last sentence.

Chapter 3, *Three Approaches to Policy*, last paragraph

Changed “**public approach**” to “**boundless approach**” in the first sentence.

Chapter 3, *Public Order*, second paragraph

Changed “**a modern biological approach**” to “**the modern biological approach**” in the first sentence.

Chapter 3, *Public Order*, last paragraph

Changed “**a public approach**” to “**the boundless approach**” in the first sentence.

Chapter 3, *The Elephant in the Room*, last paragraph, end

Added the footnote:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹³ Modern thinkers may prefer an infinitely large crane to an infinitely large elephant. In this metaphor, the higher we climb, the more we learn about what compels us to climb.”

Chapter 4, *Refining Finding Problems to Solve*, first paragraph

Changed “corporate research program” to “research program” in the third sentence.

Changed “public research program” to “research program” in the last sentence.

Chapter 5, *A Sovereign Story for Deciding Well*, last paragraph, footnote, first sentence

“A sovereign story for deciding well should lead to a culture that embraces thriving in winds and surviving in gales of creative destruction.”

was changed to:

“A civilization dedicated to deciding well calls for people who are able to thrive in winds and survive in gales of creative destruction.”

Chapter 5, *Promote Boundless, not Current Order*, last paragraph

Changed “destroying” to “unraveling” in the second sentence.

Chapter 5, *Promote Boundless, not Current Order*, last paragraph

“A civilization dedicated to deciding well calls for people who are able to thrive in winds and survive in gales of creative destruction.”

was deleted.

Changes in Version 2013.08.14

Preface, third paragraph

Changed “temporally-bounded” to “temporally bounded” in the block quote.

Chapter 1, *The Boundless Model*, title

Changed the title to “The Practically Boundless Model.”

Chapter 1, *The Practically Boundless Model*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“If we believe that thinking reasonably is the same as thinking logically, then all frames are bounded. When we reduce our sensations of the world to a logical model, we always leave something out of our model. There are no boundless frames. On the other hand, if we believe that thinking reasonably is more than thinking logically, we may combine timeless frames to form a reasonable model of deciding well that when applied to itself an infinite number of times leaves nothing out. As aspects of this boundless model, these frames are boundless.”

was changed to:

“In theory, we can solve the problem of bounds blinding us to finding better problems to solve by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.

“When used recursively an infinite number of times, a self-refining model for deciding well yields a perfectly refined model for deciding well. As a practical matter, a perfectly refined model for deciding well is boundless with respect to deciding well. For deciding well, we may think of its timeless end as a boundless end.¹⁰

“If as part of its refining process a self-refining model for deciding well breaks down the pursuit of the timeless end of deciding well into the pursuits of aspects of this timeless end, then the pursuits of these aspects would also be boundless with respect to deciding well. For deciding well, we may think of these timeless ends as boundless ends.”

¹⁰ Consider the bubble canopy of the F-16 fighter plane. Although it has a frame, for the practical purpose of fighting well, it is frameless. This is true regardless of any other visual impediments it may have, e.g., distortions caused by manufacturing mistakes.”

Chapter 1, The Boundless Model, last paragraph

Changed “frames” to “ends” and “tedium and confusion” to “confusion” in the first sentence.

Changed “linking (or re-linking)” to “linking” in the third sentence.

Changes in Version 2013.08.15

Acknowledgments, fourth paragraph

Changed “business forms printer” to “business forms company” in the first sentence.

Changed “learning itself” to “learning well” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Acknowledgments, fifth paragraph

Changed “**printing** business” to “**forms** business” in the first sentence.

Chapter 1, introduction, last paragraph

Changed “**section**” to “**chapter**” in the last sentence.

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Changed “boundless **frames**” to “**practically** boundless **ends**” in the last sentence.

Chapter 1, The Practically Boundless Model, second paragraph, footnote

Changed “**caused by** manufacturing **mistakes**” to “**due to current ignorance in material science and** manufacturing **engineering**” in the last sentence.

Chapter 1, *The Truth and Wisdom*, last paragraph

Changed “**the boundless end of believing well (the Truth)**” to “the Truth” in the fifth sentence.

Changed “**the boundless end of deciding well (Wisdom)**” to “Wisdom” in the sixth sentence of the footnote.

Chapter 3, *Three Approaches to Policy*, last paragraph

Changed “**the boundless end of deciding well (Wisdom)**” to “Wisdom” in the last sentence.

Appendix A, entire appendix

Changed “**patterns**” to “**forms**” in all (28 occurrences).

Appendix C, The Forgotten Role of Octagons, second paragraph

Changed “**The**” to “**This**” in the fourth sentence.

Appendix C, *On the Philosophy Wall*, first paragraph

Changed “form” to “form (**pattern**)” in the third sentence.

Appendix C, *On the Jurisprudence Wall*, first paragraph

Changed “**the boundless end of** jurisprudence (**Justice**)” to “jurisprudence” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, *On the Poetry Wall*, first paragraph

Changed “the boundless end of poetry (Beauty)” to “poetry (the arts)” in the first sentence.

Appendix C, *Black Clouds in Theology*, second paragraph, third sentence

Inserted the sentence:

“The putto nearest the poetry circle appears to have lost its footing.”

Appendix C, *A Boundless View of the Whole*, first paragraph

Changed “that the floor consists of a mishmash” to “the mishmash” in the fourth sentence.

Appendix C, *The Role of Julius II*, last paragraph

Changed “generate” to “form” in all (3 occurrences).

Changes in Version 2013.08.21

Chapter 1, introduction, fourth paragraph

Changed “is to learn” to “includes learning” in the last sentence.

Chapter 1, *Choosing Frames Well*, first paragraph, footnote

Changed “beings who plan and learn from their actions” to “people” in the second sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph, footnote, last sentence

“This ignorance includes not knowing whether time is truly absolute, relativistic, or something else.”

was deleted.

Chapter 3, *Zero Public Entropy*, first paragraph

Changed “uncertainty” to “inefficiency” in the first sentence.

Chapter 3, *Zero Public Entropy*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**what we currently call the sciences**” to “**physics**” in the second sentence.

Chapter 2, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, last paragraph, first footnote, end

Added the following sentences:

“**Note that we may cooperate with others not only by communicating with each other, but also by following the same strategy. In deciding well, the concept of absolute time is not without use.**”

Chapter 5, introduction, last paragraph, footnote

Changed “**Roman Emperor**” to “**Emperor,**” “**pirate Henry**” to “**Captain Henry,**” and “**crew**” to “**pirate crew**” in the second sentence.

Appendix A, introduction, third to last paragraph, footnote, last sentence

“**If a problem cannot be solved, enlarge it.**”

was changed to:

“**We need to enlarge the problem.**”

Appendix A, The Big Picture, last block quote

Changed “**decide well**” to “**pursue the boundless end of deciding well**” in the last sentence of the second paragraph.

Merged the two paragraphs.

Appendix C, A Boundless View of the Whole, first paragraph, end

Added the footnote:

“**This is not to say that the forms contained within these rectilinear borders are completely rational. These forms represent models of the world. All models of the world include claims that we cannot prove formally.**”

Appendix C, *The Role of Julius II*, last two paragraphs

“We can see a reason for this in the decorative bands of the imaginary load-bearing structure of the ceiling. As we enhance our talent for recognizing forms, we develop the ability to form **imaginative forms** in our mind’s eye. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we form geometric **forms**, such as those we see in the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

rectilinear bottom band. In the second, we form natural **forms**, such as those in the middle floral band. In the third, we form **forms based on** images from our unconscious **mind**, such as those in the golden bands filled with grotesque images that form most of the imaginary structure.

“A great danger in **pursuing this aspect of enlightenment** is confusing forms that ring true with what we currently believe with forms that are truly useful in deciding well. **We ought to judge forms by how well they ring true with everything we currently know about deciding well. We then ought to test those that ring true against experience.**”

were changed to:

“We can see a reason for this in the decorative bands of the imaginary load-bearing structure of the ceiling. As we enhance our talent for recognizing forms, we develop the ability to form **repetitive images** in our mind’s eye. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we form geometric **images**, such as those we see in the rectilinear bottom band. In the second, we form natural **images**, such as those in the middle floral band. In the third, we form images from our unconscious, such as those in the golden bands filled with grotesque images that form most of the imaginary **ceiling** structure. A great danger in **developing this talent/genius** is confusing forms that ring true with what we currently believe with forms that are truly useful in deciding well.”

Changes in Version 2013.08.24

Acknowledgments, second paragraph

Changed “**economic** methodology” to “**the methodology of modern economics**” in the sixth sentence.

Chapter 1, Choosing Frames Well, first paragraph, last three sentences

“Over time, we refine **these structures** by removing waste from them. **Sources of waste include terms that refer to more than one concept and pairs of concepts defined in terms of each other.** We may call structures **useful in reducing our sensations to concepts from which we have removed all waste that it is currently economic for us to remove** *frames*.”

were changed to:

“We may call these conceptual structures *frames*.”

Chapter 1, *The EOQ/RTS Example*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“We can see **the difference between temporal and timeless frames** in two models for helping us to decide how often to set up machine tools. The first is the temporal *economic order quantity* (EOQ) model. The second is the timeless *rapid tool setting* (RTS) model.”

were changed to:

“We refine frames by removing waste from them. Sources of waste include terms that refer to more than one concept and pairs of concepts defined in terms of each other. We may call structures useful in reducing our sensations to concepts from which we have removed all waste that it is currently economic for us to remove *models*.”

“In keeping with our distinction between temporal and timeless frames, we may **distinguish between temporal and timeless models**. We can see **this distinction** in two models for helping us to decide how often to set up machine tools. The first is the temporal *economic order quantity* (EOQ) model. The second is the timeless *rapid tool setting* (RTS) model.”

Chapter 1, *Seeing Through Apparent Miracles*, first paragraph

Changed “**fewer** material resources” to “**less** material resources” in the last sentence of the third bullet point.

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Changed “**ends**” to “**frames**” in the last sentence.

Chapter 1, *The Practically Boundless Model*, third paragraph

“When **used recursively** an infinite number of times, a self-refining model for deciding well yields a perfectly refined model for deciding well. **As a practical matter, a perfectly refined model of deciding well is boundless with respect to deciding well.**¹⁰For deciding well, we may think of its timeless end as a boundless end.”

was changed to:

“When **applied sequentially** an infinite number of times, a self-refining model for deciding well yields a perfectly refined model for deciding well. For deciding well, we may think of its timeless end as a boundless end.”

Moved the footnote to the end of the preceding subsection.

Chapter 1, *The Truth and Wisdom*, sixth paragraph

Changed “**deciding** well” to “**believing** well” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *The Truth and Wisdom*, last paragraph, first three sentences

“The process of deciding well calls for refining the process of deciding well. To refine this process well, we need a means of breaking it down into wieldier problems. One way involves breaking down the process of deciding well into the processes of pursuing universally useful knowledge resources that we can never have in excess.”

were changed to:

“We can use the insight that pursuing the Truth and pursuing Wisdom form a virtuous circle to build self-refining models for deciding well. To refine the process of deciding well, we need a means of breaking it down into wieldier parts. We can do so by breaking it into the pursuits of universally useful knowledge resources that we can never have in excess.”

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph

Changed “the model” to “the model for deciding well” in the last sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, second paragraph

Changed “three steps” to “four steps” in the first sentence.

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, last paragraph, third sentence

Added the footnote:

“¹² This presumes that there exist no extraterrestrial forms of life who are willing to converse with us. Given what the boundless view of deciding well tells us about modern reason, extraterrestrial intelligent life capable of communicating with us would likely find conversing with us to be no more useful than we would find conversing with bonobos. At this stage in our evolution, we ought to concern ourselves with being worthy of joining a cosmic conversation, not with the means of joining it.”

Chapter 4, *Refining Problems to Solve*, second paragraph, footnote, last sentence

“Part of this is taking responsibility for our epigenetic programming, which can affect not only our own potential but also that of our descendants.”

was deleted. (The last footnote in chapter 7 discusses epigenetic programming.)

Chapter 4, *Modern Policy Mistakes*, fourth paragraph, first footnote

Changed “fewer resources” to “less resources” in all (2 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, introduction, third paragraph, footnote

Changed “**fewer** scarce resources” to “**less** scarce resources” in the last sentence.

Chapter 8, Eudaemonia, last paragraph, last footnote

Identified ‘eudaemonia’ as a term (2 occurrences).

Appendix A, The Big Picture, last paragraph, end

Added the paragraph:

“**Now imagine that instead of three objects in the first row, the problem on the billboard had only the first two objects. How many solutions would we provide? What does this say about us? Are we simple minded, muddle headed, or reasonable?**”

Appendix B, introduction, first paragraph

Changed “**fewer** non-knowledge resources” to “**less** non-knowledge resources” in the first sentence.

Appendix C, On the Philosophy Wall, third paragraph, footnote

Changed “**poetry, theology, and jurisprudence frescoes**” to “theology **wall**” in the last sentence.

Appendix C, *The Role of Julius II*, last paragraph

“We can see a reason for this in the decorative bands of the imaginary load-bearing structure of the ceiling. As we enhance our talent for recognizing forms, we develop the ability to form repetitive images in our mind’s eye. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we form geometric images, such as those we see in the rectilinear bottom band. In the second, we form natural images, such as those in the middle floral band. In the third, we form images from our unconscious, such as those in the golden bands filled with grotesque images that form most of the imaginary ceiling structure. A great danger in developing this talent/genius is confusing forms that ring true with what we currently believe with forms that are truly useful in deciding well.”

was reduced to a footnote and changed to:

“We can see a reason for this in the decorative bands of the imaginary load-bearing structure of the ceiling. As we enhance our talent for recognizing forms, we develop the ability to form repetitive images in our mind’s eye. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we form geometric images, such as those we see in the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

rectilinear bottom band. In the second, we form natural images, such as those in the middle floral band. In the third, we form images from our unconscious, such as those in the golden bands filled with grotesque images that form most of the imaginary ceiling structure. A great danger in developing this talent/genius is confusing forms that ring true with what we currently believe with forms that are truly useful in deciding well. **The authors would have Julius II judge rather than create and judge ecclesiastical forms.”**

Changes in Version 2013.08.27

Chapter 1, *The Truth and Wisdom*, seventh paragraph

Changed “**ever better**” to “**well**” in all (4 occurrences).

Chapter 1, *The Truth and Wisdom*, fifth paragraph, footnote

Changed “**bounded**” to “**temporal**” in the last sentence.

Chapter 2, entire chapter

Changed “**bounded**” to “**modern**” in the first sentence of the chapter.

Changed “**bounded**” to “**temporal**” in all (14 occurrences).

Changed “*effective*” to “*effective in deciding well*” in the last sentence of the second paragraph of the chapter.

Chapter 4, *Academic Fields*, first paragraph, last two sentences

Changed “**bounded**” to “**temporal**” in the third sentence.

Changed “**In the case of believing well**” to “**Similarly**” in the last sentence.

Chapter 4, *Refining Finding Problems to Solve*, third paragraph

Changed “**bounded**” to “**temporal**” in the second sentence.

Appendix A, *The Big Picture*, entire section

Revised initial table, reversed function labels, and added subscripts to function labels.

Appendix C, *On the Poetry Wall*, last paragraph

Changed “a **multiple-frame** strategy” to “an **esoteric** strategy” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, *On the Philosophy Wall*, third paragraph

Changed “reason as rationality” to “reason of geometry, mathematics, and logic” in the first sentence.

Changes in Version 2013.08.29

Preface, eleventh paragraph

Changed “in *natural science*, in” to “in” in the first sentence.

Chapter 1, The Practically Boundless Model, second paragraph

“In theory, we can solve the problem of bounds blinding us to finding better problems to solve by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.”

was changed to:

“In theory, we can solve the problem of bounds by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.”

Chapter 2, Wealth, first paragraph, end

Added the footnote:

“In thinking about what we need to live well, we need to consider the self-fulfilling aspect of the stories we use to explain our needs. If our story is that we are naked apes, we evolve as if we are naked apes. In contrast, if our story is that we are ignorant people seeking to act wisely, we will evolve as if we are ignorant people seeking to act wisely. From a modern view of science, the relevant question is which story best predicts how we will act. From the boundless view, it is which story best helps us decide well. *In explaining the world, we seek to know the world not as we find it, but rather as we may form it.*”

Chapter 4, Testing Natural Science, title

Changed title to “Testing Boundless Pragmatism.”

Chapter 7, The Scope of Biological Evolution, first paragraph, first two sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the view of modern biology, living beings **cooperate in order to compete well for resources useful in living well. Those living beings** who always seek to cooperate before they seek to compete are anomalies.”

were changed to:

“ From the view of modern biology, living beings who always seek to cooperate before they seek to compete are anomalies.”

Chapter 7, The Scope of Biological Evolution, first paragraph, first two sentences

“From the boundless view, living beings **not only cooperate in order to compete well for resources useful in living well, but also compete in order to cooperate in living well. Those living beings** that seek to compete before they seek to cooperate are the special case of beings that have not yet developed the wisdom to do otherwise.”

were changed to:

“From the boundless view, living beings that seek to compete before they seek to cooperate are the special case of beings that have not yet developed the wisdom to do otherwise.”

Changes in Version 2013.08.31

Preface, third paragraph, second sentence after block quote

“These constraints concern all three steps in this decision cycle: (1) overcoming constraints in finding problems to solve helps us become ever more *effective*; (2) overcoming constraints in solving given problems helps us become ever more *efficient*; and (3) overcoming constraints in learning from experience helps us become ever *wiser* (ever more effective and efficient).”

was changed to:

“These constraints concern all three steps in this decision cycle: (1) overcoming constraints in finding problems to solve helps us become ever more **effective in deciding well**; (2) overcoming constraints in solving given problems helps us become ever more **efficient in solving given problems**; and (3) overcoming constraints in learning from experience helps us become ever wiser, ever more effective and efficient.”

Preface, eighth paragraph, block quote

Changed “**A**” to “**x**” in all (4 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**B**” to “**y**” in all (4 occurrences).

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Removed italics from the fourth sentence:

“In contrast, from the timeless view of deciding well put forth in this work, **we can know what we need to address unexpected problems infinitely far into the future.**”

Chapter 1, *The Practically Boundless Model*, second paragraph

“**In theory, we can solve the problem of bounds blinding us to finding better problems to solve by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.**”

was changed to:

“In theory, we can solve the problem of bounds by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.”

Chapter 1, *The Practically Boundless Model*, second paragraph

“**In theory, we can solve the problem of bounds blinding us to finding better problems to solve by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.**”

was changed to:

“In theory, we can solve the problem of bounds by building models that only blind us to problems that we would be foolish to choose. In practice, we do not have the knowledge to build such models. However, we do have the knowledge to build self-refining models for pursuing this timeless end, which is the timeless end of deciding well.”

Chapter 1, *The Truth and Wisdom*, fourth paragraph

Removed italics from the last sentence:

“**The problem with inductive reasoning concerns not only our beliefs but also the concepts underlying our beliefs.**”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, The Elephant in the Room, last paragraph, footnote

Changed “Modern **thinkers** may prefer an infinitely large crane” to “**Some modern readers** may prefer an infinitely large **construction** crane” in the first sentence.

Chapter 4, *Self-Similarity*, first paragraph

Removed italics from the last sentence:

“**The distinction between efficiency and effectiveness depends on the scale of the problem we choose.**”

Chapter 5, Good Policies, first paragraph, footnote

Changed “fractal” to “**non-Euclidean and** fractal” in the second sentence.

Appendix C, Black Clouds in Theology, last paragraph

Changed “**are** appear” to “appear” in the fourth sentence.

Changes in Version 2013.09.02

Chapter 8, Eudaemonia, last paragraph

Changed “reason as **the endless process of**” to “**reasoning well** as” in the second sentence.

Appendix C, *On the Philosophy Wall*, first paragraph

“The next most important octagon is that on which Plato and Aristotle stand **in** the wall **fresco** dedicated to philosophy:

[Image of Plato and Aristotle]

“In pointing up, Plato tells us to pursue Wisdom by pursuing Beauty, Wholeness, Justice, and the Truth. In holding his hand parallel to the ground, Aristotle tells us to know the world around us. **In following the advice of both Plato and Aristotle, we aspire to a more refined form of the two-part reasoning on which Plato and Aristotle stand, as represented by the square-within-an-octagon-within-a-square form (pattern) on the floor beneath their feet:**

[Image of square-within-an-octagon-within-a-square]”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“The next most important octagon is that on which Plato and Aristotle stand on the wall dedicated to philosophy:

[Image of Plato and Aristotle]

“In pointing up, Plato tells us to pursue Wisdom by pursuing Beauty, Wholeness, Justice, and the Truth. In holding his hand parallel to the ground, Aristotle tells us to know the world around us. **The octagon is part of a symbol of the two-part reason of Plato and Aristotle, which involves finding and solving temporal problems:**

[Image of square-within-an-octagon-within-a-square]

“**In moving forward, we repeat the sequence of finding and solving temporal problems. In doing so, we refine our reason.**”

Appendix C, *On the Philosophy Wall*, second paragraph (except last image)

“**A symbol of this aspiration would combine elements of the symbol of the reasoning on which Plato and Aristotle stand with those of the symbol of pursuing Wisdom and worldly knowledge in the center of the ceiling. In his description of refining reason at the end of Book IX of *The Republic*, Plato provided us with a means of combining these elements into such a symbol. His** Socrates describes the human psyche as consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. And so on to infinity. Our hydra parts are ruled by desire, our lion parts by spirit, and our human parts by reason. We refine reason by having our human parts train our lion parts to control our hydra parts. A visual means of expressing this self-similarity lies beneath our feet in a crude version of a self-similar **tile form** known to Roman artisans since the late eleventh century:”

[Image of Sierpinski triangle]

“Using this **form** as a model, we can imagine a self-similar **form** that combines the simplicity of the square-within-an-octagon-within-a-square **form** with the dynamism of the image above the oculus:”

was changed to:

“**We can reduce the repetitive use of this symbol of the two-part reason of Plato and Aristotle to a single symbol using Plato’s self-similar metaphor of refining reason. Near the end of Book IX of *The Republic*, his** Socrates describes the human psyche as consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. And so on to infinity. Our hydra parts are ruled by desire, our lion parts by spirit, and our human parts by reason. We refine reason by having our human parts train our lion parts to control our hydra parts. A visual means of expressing this

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

self-similarity lies beneath our feet in a crude version of a self-similar **image** known to Roman artisans since the late eleventh century:³

[Image of Sierpinski triangle]

“Using this **image** as a model, we can imagine a self-similar **image** that combines the simplicity of the square-within-an-octagon-within-a-square **image** with the dynamism of the image above the oculus:”

Appendix C, *On the Philosophy Wall*, third paragraph, first sentence

“Reinforcing this **form** as a symbol of refining the reason of Plato and Aristotle is the figure of Heraclitus, which visually connects the square-within-a-square-within-a-square **floor form** (reason of geometry, mathematics, and logic) to the square-within-an-octagon-within-a-square **floor form** (reason of Plato and Aristotle):”

were changed to:

“Reinforcing this **image** as a symbol of refining the reason of Plato and Aristotle is the figure of Heraclitus, which visually connects the square-within-a-square-within-a-square **symbol of endless rationality** (the reason of geometry, mathematics, and logic) to the square-within-an-octagon-within-a-square **symbol of the** reason of Plato and Aristotle:”

Appendix C, *On the Philosophy Wall*, third paragraph

Changed “**in the fresco**” to “**on this wall**” in the third sentence.

Changed “**endlessly self-similar image**” to “**symbol of reason**” in the third sentence.

Changed “**fresco**” to “**wall**” in the first sentence of the footnote.

Appendix C, *On the Theology Wall*, first paragraph

Changed “wall **fresco**” to “wall” in the first sentence.

Appendix C, *On the Poetry Wall*, first paragraph

Changed “**in the fresco**” to “**on the wall**” in the first sentence.

Changed “**fresco**” to “**wall**” in the second sentence.

Appendix C, *Black Clouds in Theology*, second paragraph, footnote, third sentence

“**The Inquisition banned this letter in all Catholic countries.**”

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, Black Clouds in Theology, last paragraph

Changed “In the theology fresco” to “On the theology wall” in the first sentence.

Changed “fresco” to “wall” in the second sentence.

Changed “historical figures in the philosophy fresco” to “figures on the philosophy wall” in the fourth sentence.

Appendix C, A Boundless View of the Whole, third paragraph

Changed “fresco” to “wall” in the first sentence.

Changed “fresco” to “wall” in the second sentence.

Changes in Version 2013.09.11

Preface, fourth paragraph

“In taking this boundless approach to deciding well, we use bounded models of the world to help us evaluate solutions to given problems. In bounding our models of the world, we exclude what happens outside the bounds of our models from our models. In effect, we presume to know more than we can ever possibly know in order to build logically consistent models of the world that help us predict well within given domains.”

was deleted.

Preface, new fourth paragraph, first two sentences

“In taking this boundless approach, we also use a boundless model of the world of the world to help us find problems to solve. The most basic problem we face is the problem of whether the problem we believe is best is truly best.”

were changed to:

“The most basic problem we face in finding temporally-bound problems to solve is the problem of knowing whether the problem we believe is best is truly best.”

Preface, new sixth paragraph

Changed “aspects” to “facets” in the third sentence.

Preface, new seventh paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Underlying this complex approach to deciding well is a concept of reason based on beauty as well as logic. The claim that we ought to replace our current concept of reason calls for extraordinary evidence. But what qualifies as evidence? From the boundless view of believing well, we ought to choose the concept of reason that rings the truest with all that we currently know about believing well ever more wisely. We do so by acting as if it is best.”

was deleted.

Preface, last paragraph

Changed “pursue the boundless end of believing well” to “believe well” in the first sentence.

Chapter 1, *The EOQ/RTS Example*, third paragraph

Changed “most efficient” to “best” in the ninth sentence.

Chapter 1, *The Practically Boundless Model*, third paragraph

Changed “For deciding well, we” to “We” in the last sentence.

Chapter 1, *The Practically Boundless Model*, fourth paragraph

“If as part of its refining process a self-refining model for deciding well breaks down the pursuit of the boundless end of deciding well into the pursuits of aspects of this timeless end, then the pursuits of these aspects would also be boundless with respect to deciding well. For deciding well, we may also think of these timeless ends as boundless ends.”

was merged with the preceding paragraph and changed to:

“If such a model for deciding well refines itself by breaking down the pursuit of the boundless end of deciding well into the pursuits of facets of this boundless end, then the pursuits of these facets would also be boundless. We may also think of these facets as boundless ends.”

Chapter 1, *The Truth and Wisdom*, last paragraph

Changed “a multiple-frame¹⁴ model” to “multiple-frame¹⁴ models” in the sixth sentence.

Added the following sentences to the end of the footnote:

“From the view of the process of deciding well, we find this unity in the relations between the boundless factors of deciding well. From the view of the boundless end of deciding well, we find it in the relations of the facets of the boundless end of deciding

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

well (Wisdom). As we shall see in the third chapter, this distinction corresponds to the distinction between the timeless and transcendental ends of deciding well.”

Chapter 2, introduction, last paragraph

Changed “*efficient*” to “efficient in solving given problems” in the first sentence.

Changed “*effective*” to “effective” in the last sentence.

Changed “the world as it ought to be” to “how we ought to live” in the last sentence in the footnote.

Chapter 2, *Pleasure and Pain*, fourth paragraph, last two sentences

“This is good in that we can learn to find pleasure in activities that are good for us, such as eating healthy foods. It is bad in that we also can find pleasure in things that are bad for us or for others, such as masochistic or sadistic acts.”

were changed to:

“This is good when we find pleasure in activities that are good for us, such as eating healthy foods, but bad when we find pleasure in things that are bad for us or for others, such as masochistic or sadistic acts.”

Chapter 2, *Pleasure and Pain*, sixth paragraph

Changed “basic needs” to “most basic needs” and “higher” to “less basic” in the fourth sentence.

Chapter 3, introduction, first paragraph

“Deciding well using the boundless approach calls for us to contemplate how well the problems we find ring true with all that we currently know about deciding well. If a problem rings true, then we have found a beautiful problem to solve.”

was deleted.

Chapter 3, introduction, new first paragraph

Changed “boundless frame” to “practically boundless frame” and “contemplating well and Beauty” to “the process of contemplating well and the end of contemplating well” in the first sentence.

Chapter 3, *Public Entropy*, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**inefficiency in heat engines**, disorder in physical systems, and inefficiency in information processing” to “disorder in physical systems **and** inefficiency in **heat engines and** information processing” in the first sentence.

Chapter 3, *Public Entropy*, third paragraph, footnote

Changed “problem” to “**exoteric/esoteric** problem” in the last sentence.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, fourth paragraph, footnote, last sentence

“**Disproving it would damage the boundlessly pragmatic argument for free will, which depends on the claim that the existence of free will** rings true with all that we currently know about **pursuing the boundless end of** deciding well.”

was changed to:

“**Note that we can neither prove nor disprove that we have** free will. **However, if claim that it exists** rings true with all that we currently know about deciding well, **we ought to put our faith in its existence.**”

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, sixth paragraph, first sentence

“From the boundless view, there is a fourth class, **within which** the world consists of a past, a present, and a practically infinite number of possible futures.”

was changed to:

“From the boundless view, there is a fourth class. **A defining feature of this class is the belief that** the world consists of a past, a present, and a practically infinite number of possible futures.”

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, sixth paragraph, last two sentences

“**In this class**, we relate the strange behaviors of objects on the quantum level to everything we believe we know about deciding well. As we shall see in the next chapter, this rings true with Einstein’s call for physicists to think critically about not only physics, but also everyday thinking.”

were moved to the end of the section as a new paragraph and changed to:

“**From the boundless view**, we relate the strange behaviors of objects on the quantum level to everything we believe we know about deciding well. As we shall see in the next

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

chapter, this rings true with Einstein's call for physicists to think critically about not only physics, but also everyday thinking."

Chapter 4, introduction, last two paragraphs

"We use descriptions of the world to predict. A prediction is knowledge of what is **apt** to happen. Predictions help us to assign probabilities to uncertain events, which helps us to evaluate alternatives. We refine the descriptions that we use to predict by how well they help us predict. **Members of the set of refined descriptions that help us predict help us become more efficient.**"

"We also use descriptions of the world to explain the world. An explanation is knowledge of why things happen as they do. Explanations help us to understand how our actions may change the world, which helps us to formulate alternatives. We refine the descriptions that we use to explain by how well they help us find problems to solve. **Members of the set of refined descriptions that help us explain help us become more effective.**"

were changed to:

"We use descriptions of the world to predict. A prediction is knowledge of what is **likely** to happen. Predictions help us to assign probabilities to uncertain events, which helps us to evaluate alternatives. We refine the descriptions that we use to predict by how well they help us predict.

"We also use descriptions of the world to explain the world. An explanation is knowledge of why things happen as they do. Explanations help us to understand how our actions may change the world, which helps us to formulate alternatives. We refine the descriptions that we use to explain by how well they help us find problems to solve."

Chapter 4, *Self-Similarity*, first paragraph

Changed "**Again, we**" to "**We**" in the first sentence.

Chapter 4, *Self-Similarity*, second paragraph

"On any given level of abstraction, we can describe the relations between events, but not the causes of events. To explain the causes of events, we need to view the world from a lower level of abstraction. On the lowest level of abstraction, there exist no lower levels of abstraction from which to explain. From the view of people who believe that quantum mechanics is the lowest level of abstraction, searching for models that explain the behavior of objects on the level of quantum mechanics is foolish. In contrast, from the boundless view, we ought to search lower levels for models that explain causation on the level of quantum mechanics *wisely*. More than one explanation may fit what we can sense.² We ought to choose the explanation that best helps us decide well."

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“² In philosophical terms, (theory-laden) facts underdetermine theories that we use to explain causation.”

was reduced to a footnote to the first paragraph and changed to:

“² On any given level of abstraction, we can describe the relations between events, but not the causes of events. To explain the causes of events, we need to view the world from a lower level of abstraction. On the lowest level of abstraction, there exist no lower levels of abstraction from which to explain. From the view of people who believe that quantum mechanics is the lowest level of abstraction, searching for models that explain the behavior of objects on the level of quantum mechanics is foolish. In contrast, from the boundless view, we ought to search lower levels for models that explain causation on the level of quantum mechanics *wisely*. More than one explanation may fit what we can sense. In philosophical terms, (theory-laden) facts underdetermine theories that we use to explain causation. We ought to choose the explanation that best helps us decide well.”

Chapter 4, *Self-Similarity*, last paragraph

Changed “*in our markets*” to “*, into our markets*” in the last sentence.

Chapter 5, *The Explicit Experiment*, second paragraph, footnote, last sentence

“Franklin’s famous reply to the woman who asked him what the secret meetings that we now call the Constitutional Convention produced (“A republic, if you can keep it”) **rings true with the belief that Franklin made this crucial change.**”

was changed to:

“**This rings true with** Franklin’s famous reply to the woman who asked him what the secret meetings that we now call the Constitutional Convention produced: “A republic, if you can keep it.””

Chapter 7, *OODA Loop Analysis*, last paragraph

Changed “Operation Desert Storm” to “Operation Desert Storm, **the 1991 campaign to remove Iraqi troops from Kuwait**” in the first sentence.

Chapter 8, introduction, first paragraph

“**Pursuing ends well calls for us to overcome our ignorance of the world. This ignorance takes the form of poor predictions and explanations of causation. Poor predictions hinder us from solving given problems well. Poor explanations hinder us from finding problems to solve well.**”

was deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, introduction, new second paragraph, fourth sentence

“Excellence in solving given bounded problems calls for logically consistent models.”

was deleted.

Chapter 8, introduction, new third paragraph, third and fourth sentences

“Excellence in finding problems calls for defining our chosen timeless end and the means of pursuing it in terms of each other. If these two objects were not ambiguous, there would be no room for better approximates of them.”

were deleted.

Chapter 8, introduction, new fourth paragraph, third sentence

“Excellence in finding problems to solve calls for multiple-frame models that are ambiguous with respect to the boundless ends of all boundless factors of deciding well and the means of pursuing these ends.”

was deleted.

Chapter 8, introduction, last paragraph

Changed “believing well ever more wisely” to “deciding well” in the second sentence.

Chapter 8, Complete Reason, first paragraph, second sentence

“We can never prove a set of rules for pursuing the Truth to be both logically consistent and complete.⁴”

“⁴ Consider the following claims: (1) for any set of rules for pursuing the Truth, we will either discover or never discover the Truth; (2) if we discover the Truth, we prove that the set of rules is complete; (3) if we never discover the Truth, we never prove that the set of rules is complete; and (4) pursuing the Truth is an endless process. From these four claims, it follows that we can never prove a set of rules for pursuing the Truth to be both logically consistent and complete. If we discover the Truth, we prove false the claim that pursuing the Truth is an endless process. If we never discover the Truth, we never prove that the set of rules is complete.”

was changed to:

“We can never prove a set of rules for pursuing the Truth to be complete.”

Chapter 8, Complete Reason, first paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “approach” to “approach to deciding well” and “*decide* well” to “decide well” in the third sentence.

Chapter 8, Eudaemonia, first paragraph, second and third sentences

“By themselves, these frameworks are useless. We make them useful by adding to them what we currently believe we know about pursuing the boundless factors of deciding well.”

were deleted.

Appendix A, introduction, second paragraph

Changed “third object” to “third object in the bottom row” in the third sentence.

Changed “third object” to “third object in the top row” in the last sentence.

Appendix A, introduction, seventh paragraph

Changed “(bounded) results” to “results” in the fifth sentence.

Changed “This” to “This temporal approach” in the last sentence.

Appendix C, *On the Philosophy Wall*, second paragraph

Changed “image with the dynamism of the image above the oculus” to “form with the dynamism of Plato and Aristotle walking across a series of these forms” in the last sentence.

Appendix C, *On the Poetry Wall*, last paragraph

Changed “as a whole depicts an esoteric strategy for pursuing Holy Wisdom” to “depicts an esoteric strategy for bringing ever more Holy Wisdom into the world” in the last sentence.

Changes in Version 2013.09.18

Acknowledgments, second paragraph, last sentence

“I finally gave Gordon his paper, “Wealth in the Information Age, A Humanistic Approach to Economics,” seventeen years late.”

was changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Today, I recognize the source of this failure as dread of thinking deeply about the whole of space-time, which calls for overturning modern explanations of the world.”

Acknowledgments, fifth paragraph

“After selling my interest in the forms business in 1985, I decided to explore an idea I had about how to improve learning in financial analysis. Fortunately, the object-oriented software tools I needed to write an interactive compiler based on this idea were not yet available. While waiting for these tools to become available, and stable, I had much time to revisit the modern economic problem of learning. This took me to the Santa Fe Institute, where I made friends with two seekers of larger truths. Howard Sherman introduced me to Albert Einstein’s theory of knowledge. W. Brian Arthur suggested that I write a book “from the heart.” Writing what evolved into this book became a higher priority than selling the financial analysis language, which has too little of the sweet pretense of certainty for modern tastes.”

was changed to:

“After selling my interest in the forms business in 1985, I decided to explore an idea I had about how to improve learning in financial analysis. The object-oriented software tools I needed to write an interactive compiler based on this idea were not yet available. While waiting for these tools to become available, and stable, I had much time to revisit the modern economic problem of learning. In 1992, I gave Gordon Douglass the term paper I was unable to write seventeen years earlier, “Wealth in the Information Age, A Humanistic Approach to Economics.” This became the basis for a paper that I delivered to the International Schumpeter Society conference in Athens a year later. A little more than a year after that, I joined the Santa Fe Institute Business Network, where I made friends with two seekers of larger truths. Howard Sherman introduced me to Albert Einstein’s theory of knowledge. W. Brian Arthur suggested that I write a book “from the heart.” Writing what evolved into this book became a higher priority than selling the financial analysis language, which has too little of the sweet pretense of certainty for modern tastes.”

Chapter 1, *The Truth and Wisdom*, second paragraph

Changed “provides” to “provided” in the first sentence.

Chapter 1, *The Truth and Wisdom*, fourth paragraph

Changed “provides” to “provided” in the first sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph

Changed “, given our ignorance of not only the current state of the world, but also all possible future states of the world.” to “.” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *Ever More Complete Multiple-Frame Models*, third paragraph

Changed “to work well” to “to **live and** work well” in the first sentence.

Changed “provide” to “**provided**” in the second sentence.

Chapter 3, introduction, second paragraph

Changed “**joining**” to “**linking**” in the first sentence.

Chapter 4, introduction, first paragraph

Changed “**tells**” to “**told**” in the first sentence.

Appendix A, introduction, second paragraph

Changed “three objects” to “**the following** three objects” in the first sentence.

Appendix B, *Inducing the Creation of Knowledge*, third paragraph

Changed “machines” to “**WIP inventory**, machines” in the second sentence.

Appendix C, A Boundless View of the Whole, second paragraph

Changed “, **as opposed to the world as we may form it.**” to “.” in the first sentence.

Changed “, **as opposed to parts of the world as we currently find them.**” to “.” in the second sentence.

Appendix C, *The Role of Julius II*, last paragraph, footnote

Changed “**this**” to “**why the authors would have Julius II judge rather than create and judge ecclesiastical forms**” in the first sentence.

Deleted the last sentence: “**The authors would have Julius II judge rather than create and judge ecclesiastical forms.**”

Changes in Version 2013.09.20

The following edits were recommended by Patrika Vaughn:

Acknowledgments, second paragraph

Changed “.” to “:.” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Acknowledgments, third paragraph

Changed “.” to “:” in the first sentence.

Acknowledgments, last paragraph

Changed “.” to “:” in the first sentence.

Preface, sixth through second to the last sentences

Changed “,” to “” in the first sentence. (Removed commas after chapter name.)

Chapter 1, *The EOQ/RTS Example*, sixth paragraph, third through fifth sentences

“They also reduce scrap. When production team members set up wrongly, they need to scrap fewer parts. Short setup times even enhance learning. It is much easier for team members to remember what they did wrong three hours ago than what they did wrong three weeks ago.”

were changed to:

“They also reduce scrap: when production team members set up wrongly, they scrap smaller batches. Short setup times even enhance learning: it is much easier for team members to remember what they did wrong three hours ago than what they did wrong three weeks ago.”

Chapter 1, *Ever More Complete Multiple-Frame Models*, third paragraph, footnote

Changed “that species” to “what species” in the third sentence.

Chapter 2, *Tools for Pursuing Pleasure and Joy*, third paragraph

Changed “to tools” to “tools” in the first sentence.

Chapter 3, *Public Entropy*, first paragraph, footnote

Changed “and alternative to” to “(and alternative to)” in the last sentence.

Chapter 4, introduction third paragraph, last two sentences

“We refine worldly knowledge by weeding out all worldly knowledge that we cannot express in words or symbols. What remains is the set of all descriptions of the world.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“**In analyzing the world, we refine worldly knowledge by weeding out all worldly knowledge that we cannot express in concepts. What remains is the set of all conceptual descriptions of the world.**”

Chapter 4, introduction, third paragraph

Changed “descriptions” to “**conceptual** descriptions” in the first sentence.

Chapter 4, introduction, last paragraph

Changed “descriptions” to “**conceptual** descriptions” in the first sentence.

Chapter 7, *A Normal Anomaly*, second paragraph

Changed “philosopher **of science**” to “philosopher-**scientist**” in the first sentence.

Changes in Version 2013.09.21

Acknowledgments, second paragraph, footnote, seventh sentence

“**I did not realize that I had stumbled into the economic equivalent of Georg Cantor’s continuum hypothesis.**”

was deleted.

Chapter 1, The Practically Boundless Model, last paragraph

Changed “**the divine**” to “**a divinity or divinities**” in the last sentence.

Chapter 2, introduction, last paragraph, footnote

Changed “**ought**” to “**owe it to ourselves**” in the first half of the last sentence.

Chapter 3, The Elephant in the Room, first paragraph, footnote, first sentence

Inserted the following after the first sentence:

“**Allowing for the possibility of physical laws and constants other than those of our universe would yield even longer odds.**”

Chapter 5, Good Policies, first paragraph, footnote

Changed “geometry” to “**geometries**” in the second sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 5, *Promote Savings for Welfare*, last paragraph

Changed “a safety net program” to “safety net programs” and “material resources” to “resources” in the sixth sentence.

Changed “.” to “to compete against government safety net programs.” in the last sentence.

Appendix A, introduction, third paragraph

Changed “geometry” to “Euclidean geometry” in the second sentence.

Appendix A, introduction, x paragraph

Changed “temporal” to “superficial” in the second sentence.

Appendix A, Indispensable Forms, last paragraph

Changed “*the science of forms*” to “the science of forms” in the first sentence.

Changed “When confronted with more than one solution to an information problem, we choose the solution that appears” to “In pursuing this knowledge, we choose the solutions to problems that appear” in the second sentence.

Changed “it is” to “they are” in the third sentence.

Appendix C, The Forgotten Role of Octagons, first paragraph

Changed “the Divine” to “the divine” in the first sentence.

Appendix C, A Boundless View of the Whole, last paragraph

Changed “and” to “or” in the third (second to last) sentence.

Changed “gesture or gaze upward toward” to “gaze or gesture toward Holy” in the last sentence.

Appendix C, *The Role of Julius II*, first paragraph

Changed “Wisdom” to “Holy Wisdom” in the last sentence.

Changes in Version 2013.09.28

Acknowledgments, second paragraph, end

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Added the paragraph:

“The first two were sons of bankers from Grinnell, Iowa, a “new Jerusalem” shaken by the scandalous collapse of its most trusted bank in 1904: John Huntington Harris pointed out people and habits worth imitating. He also expressed great contempt for people who too readily reduced the world to numbers without considering the usefulness of these numbers, a habit he acquired while rising through the ranks of the Organizational Planning and Statistical Control Divisions of the Army Air Force Management Control Directorate during the Second World War. Wilfred “Mac” McNeil told me parables based on his experiences as special assistant for financial matters to the first secretary of the Department of Defense and comptroller under its next five secretaries. Both knew that the way forward that can be told is not the best way forward. Accordingly, they put more stock in character and culture than most of their contemporaries did.”

Acknowledgments, new third paragraph

Changed “first” to “next” in the first sentence.

Changed “failure” to “problem” and “, which calls for overturning modern explanations of the world” to “.” in the last sentence.

Acknowledgments, new fourth paragraph

Changed “The next four were” to “Following these were four” in the first sentence.

Acknowledgments, new fifth paragraph

Changed “1980s,” to “1980s” in the first sentence.

Changed “act and learn” to “decide (act and learn)” in the third sentence.

Acknowledgments, last paragraph

“The last three were sons of bankers from Grinnell, Iowa, a “new Jerusalem” shaken by the scandalous collapse of its most trusted bank in 1904: Wilfred McNeil told me parables based on his experiences as special assistant for financial matters to the first secretary of the Department of Defense and comptroller under its next five secretaries. George Bach took a Socratic approach. John Harris pointed out people and habits worth imitating. He also expressed great contempt for people who too readily reduced the world to numbers without considering the usefulness of these numbers, a habit he acquired while rising through the ranks of the Organizational Planning and Statistical Control Divisions of the Army Air Force Management Control Directorate during the Second World War. All three knew that the way forward that can be told is not the best way forward. In this work, I describe a strategy for learning how to tell ever more about the best way forward.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“For the last eighteen years I have listened to what many thoughtful people had to say about the best way forward. All of these people framed their arguments on what they believed to be facts about the world. In contrast, logician Kurt Gödel believed that it was possible to base such arguments on a reasonable approach to believing well, which he called an *a priori* approach to science. In this little book, I argue that such an approach is the best way to tell ever more about the best way forward, but only if it is self-referential, self-similar, and superrational.”

Chapter 4, *Self-Similarity*, last paragraph

Changed “*and cultures*” to “*cultures, and characters*” in the last sentence.

Appendix A, introduction, second to last paragraph, footnote

Changed “*degenerate polygons* (apeirogons, digons, and monogons)” to “apeirogons and other *degenerate polygons* (digons and monogons)” in the last sentence.

Appendix A, The Big Picture, third paragraph

Added the fifth and sixth terms to the circle sequence in order to match the six-term polygon sequence.

Appendix A, Indispensable Forms, first paragraph

Added the footnote:

“⁴ This is a matter of weeding out less beautiful forms that accomplish the same function in deciding well as other forms. For example, in the introductory section of this appendix we weeded out the regular/irregular means of describing objects (R8, I7, R7, I6, R6, I5, R5, I4, R4, I3, R3) because it was less beautiful than the no-transform/yes-transform means (N8, Y8, N7, Y7, N6, Y6, N5, Y5, N4, Y4, N3).”

Appendix C, *On the Jurisprudence Wall*, first paragraph

Changed “wisely” to “*ever more* wisely” in the fifth sentence.

Changes in Version 2013.10.14

Entire document

Removed superfluous commas from “not only... but also” constructions (27 occurrences).

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Acknowledgments, third paragraph

Changed “century, he” to “century Fred” and “pushed” to “gently pushed” in the second sentence.

Acknowledgments, third paragraph, last sentence

“Today, I recognize the source of this problem as dread of thinking deeply about the whole of space-time.”

was deleted.

Acknowledgments, last paragraph

“For the last eighteen years I have listened to what many thoughtful people had to say about the best way forward. All of these people framed their arguments on what they believed to be facts about the world. In contrast, logician Kurt Gödel believed that it was possible to base such arguments on a reasonable approach to believing well, which he called an *a priori* approach to science. In this little book, I argue that such an approach is the best way to tell ever more about the best way forward, but only if it is self-referential, self-similar, and superrational.”

was changed to:

“For the last eighteen years I have listened to what many thoughtful people had to say about the best way forward. All of them based their arguments on claimed facts about the world, on apparently solid bedrock. In contrast, logician Kurt Gödel believed that it was possible to base such arguments on a reasonable approach to believing well, on a floating foundation. In this little book, I argue that such an “*a priori*” approach is the best way to tell ever more about the best way forward, but only if it is self-referential, self-similar, superrational, and boundless.”

Preface, first paragraph

Changed “in order to take” to “and took” in the second sentence.

Preface, third paragraph

Changed “effective and efficient” to “effective in deciding well and ever more efficient in solving given problems” in the second to last sentence.

Preface, seventh paragraph, first sentence

“To address this universal problem well we need to consider the knowledge resources that we require to address it well.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“Addressing this universal problem well calls for considering the knowledge resources that we need to address it well.”

Preface, seventh paragraph

Removed commas from the last two sentences.

Chapter 1, *Temporal and Timeless Frames*, last paragraph, first footnote

Changed “problem, speaking of efficiency without specifying a problem scale” to “problem we choose, speaking of efficiency without specifying the problem” in the first sentence.

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Changed “practically boundless frames” to “boundless ends” in the last sentence.

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph, footnote

“¹⁰ Consider the bubble canopy of the F-16 fighter plane. Although it has a frame, for the purpose of fighting well, it is frameless. This is true regardless of any other visual impediments it may have, e.g., distortions due to current ignorance in material science and manufacturing engineering.”

was moved to the third paragraph of the next section and changed to:

“¹⁰ In accordance with the reasonable concept of completeness put forth in the last chapter, we may also call the timeless end of deciding well a *reasonably* boundless end.”

Chapter 1, The Practically Boundless Model, title

Changed title to “The Boundless Model of Deciding Well.”

Chapter 1, The Boundless Model of Deciding Well, third paragraph

Changed “model for deciding well” to “model of deciding well” in all (3 occurrences).

Chapter 1, *The Truth and Wisdom*, last paragraph

Changed “models for deciding well” to “models of deciding well” in the first sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, first paragraph

Changed “model for deciding well” to “model of deciding well” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Overcoming Constraints in Deciding Well*, second paragraph

Changed “the engineering approach to overcoming constraints” back to “*the engineering approach to overcoming constraints*” in the last sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, third paragraph

Changed “the modern biological approach to overcoming constraints” back to “*the modern biological approach to overcoming constraints*” in the last sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, third paragraph, footnote, last two sentences

“Following this line of thinking, refining the process of computing the value of π (well) is part of the process of computing the value of π (well). Further, the timeless end of computing π (well) is a complex structure of knowledge rather than a simple number.”

were changed to:

“Following this line of thinking, the timeless end of computing π (well) is a complex structure of knowledge rather than a simple number.”

Chapter 3, *Public Entropy*, last paragraph, last sentence

“We can begin using this concept of public entropy to remove waste from our belief systems by more tightly linking quantum mechanics to deciding well.”

was promoted to a paragraph and changed to:

“We can begin using this concept by more tightly linking quantum mechanics to deciding well.”

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, fourth paragraph, footnote, last two sentences

“Note that we can neither prove nor disprove that we have free will. However, if the claim that it exists rings true with all that we currently know about deciding well, we ought to put our faith in its existence.”

were deleted.

Chapter 3, *The Elephant in the Room*, last paragraph, footnote

“¹⁴ Some modern readers may prefer an infinitely large construction crane to an infinitely large elephant. In this metaphor, the higher we climb, the more we learn about what compels us to climb.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was deleted.

Chapter 4, *Refining Finding Problems to Solve*, third paragraph, seventh and eighth sentences

“For example, we can look for trading problems that give rise to the uneven flow of resources. **The uneven flow of resources** wastes time and other resources.”

were changed to:

“For example, we can look for trading problems that give rise to the uneven flow of resources, which wastes time and other resources.”

Chapter 6, *Pursuing Eternal Oneness*, first paragraph

Changed “eternal **mystical** oneness” to “eternal oneness” in all (2 occurrences).

Chapter 6, *Pursuing Eternal Oneness*, last paragraph

“Some means to experiencing mystical oneness conserve scarce resources **by sacrificing safety or health**. Religions that help us live well include beliefs to check these extreme means. One example is the Hindu belief **that we have as many lifetimes as it takes to experience mystical union**. Another is the Catholic belief **that we can attain eternal mystical oneness during an existence after life known as purgatory**. **Worldly religions balance emotional and reasonable means to experiencing mystical oneness during life.**”

was changed to:

“Some means to experiencing mystical oneness **sacrifice safety or health in order to** conserve scarce resources. Religions that help us live well include beliefs to check these extreme means. One example is the Hindu belief in **as many lifetimes as it takes to achieve eternal oneness**. Another is the Catholic belief **in life after death in which to achieve eternal oneness.**”

Chapter 7, *An Extraordinary Anomaly*, last paragraph

“**In playing the boundless game of deciding well, we judge actions by how well they ring true with all that we currently know about deciding well and people by the content of their character as revealed by their actions.**”

was deleted.

Chapter 7, *OODA Loop Analysis*, second paragraph, last sentence

“**This made them appear more unpredictable and threatening to their opponents.**¹⁰”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“¹⁰ Boyd, J., *Patterns of Conflict*, 2005 Defense in the National Interest revision, slide #5. This slide presentation is available online in the Boyd archive section of Project White Horse, < <http://www.projectwhitehorse.com/boydsarchive.htm>> (2 July 2013).”

was deleted.

Chapter 7, *OODA Loop Analysis*, fourth paragraph, end (of *Patterns of Conflict* block quote)

Added the footnote:

“¹⁰ Boyd, J., *Patterns of Conflict*, 2005 Defense in the National Interest revision. This slide presentation is available online in the Boyd archive section of Project White Horse, < <http://www.projectwhitehorse.com/boydsarchive.htm>> (2 July 2013).”

Chapter 7, *Boyd's Grand Strategy*, first paragraph, first footnote

“¹² Boyd, J., *Patterns of Conflict*, 2005 Defense in the National Interest revision, slide #144. This slide presentation is available online in the Boyd archive section of Project White Horse, < <http://www.projectwhitehorse.com/boydsarchive.htm>> (2 July 2013).”

was changed to:

“¹² Boyd, J., *Patterns of Conflict*, slide #144.”

Chapter 7, *Boyd's Grand Strategy*, last paragraph, last sentence

“From this timeless view, boundless factors of deciding well are nothing more than figments of our imagination.”

was changed to:

“From the boundless view, Boyd’s grand strategy is bounded, hence incomplete.”

Chapter 8, introduction, fourth paragraph

Changed “*Reason*” to “*boundless pragmatism*” in the last sentence.

Chapter 8, introduction, second to last paragraph, footnote

Changed “*Reasonable*” to “*boundlessly pragmatic*” in all (2 occurrences).

Chapter 8, introduction, last paragraph

Changed “*Reasonable*” to “*boundlessly pragmatic*” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Deleted the last sentence: “**We do so by putting our faith in Reason.**”

Chapter 8, Complete Reason, title

Changed title to “**Completeness.**”

Chapter 8, Completeness, first paragraph

Changed “**Reason**” to “**boundless pragmatism**” in the last sentence.

Chapter 8, Eudaemonia, second paragraph

Changed “**fully** aware” to “**directly** aware” in the third sentence.

Changed “aware” to “**directly** aware” in the fourth sentence.

Changed “aware” to “**directly** aware” in the last sentence.

Chapter 8, Eudaemonia, last paragraph

Changed “**The boundless approach to** deciding well” to “**Deciding** well” in the first sentence.

Chapter 8, Eudaemonia, last paragraph, first footnote, first sentence

“Plato also provided us with a bounded view of governing our minds well **in likening governing our minds well to governing ourselves well:**”

was changed to:

“**In likening governing our minds well to governing ourselves well,** Plato also provided us with a bounded view of governing our minds well:”

Chapter 8, Eudaemonia, last paragraph, last footnote

Changed “**Reason**” to “**Wisdom**” in the third sentence.

Appendix A, introduction, third to last paragraph, footnote, all three sentences

“**Under** our first scheme for representing objects, which we based on how objects appeared, this sequence (**R8, I5, R7, I6, R6, I5, R5, I4, R4, I3, R3**) makes little sense. To find a deeper pattern within this pattern, we need to start the sequence with a polygon of more than eight sides. We need to enlarge the problem.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Note that if we used our first scheme for representing objects, which we based on how objects appeared, this sequence would make little sense: R8, I5, R7, I6, R6, I5, R5, I4, R4, I3, R3. To find a deeper pattern within this pattern, we would need to start the sequence with a polygon of more than eight sides. We would need to enlarge the problem.”

Appendix A, introduction, second to last paragraph, footnote, last two sentences

“Note that this analysis ignores apeirogons, and other degenerate polygons (digons and monogons). Including them here would add little to our understanding of the relation between mathematics and science.”

were changed to:

“We may choose to approach the programming problem that this infinity creates either algebraically or geometrically. If we approach this problem algebraically, we must create a new class (to hold infinities as well as integers) and a method for subtracting (or decrementing by one) for this new class. If we approach this problem geometrically, we must expand our internal language to handle circles. In this analysis, we take the geometric approach. Note that this analysis ignores degenerate polygons and non-Euclidean geometries. Including them here would add little to our understanding of the boundlessly pragmatic relation between mathematics and science.”

Appendix A, Indispensable Forms, last paragraph

Changed “most useful” to “most useful to us” in the last sentence.

Appendix B, Smoothing Flows, last two paragraphs

Merged the last two paragraphs.

Appendix B, Machine Tools, first paragraph

Changed “three ends: (1) automation; (2) fool proofing; and (3) rapid tool setting” to “three basic ends: automation, fool proofing, and rapid tool setting” in the last sentence.

Appendix B, Machine Tools, second paragraph

“From the view of modern economics and management science, factories are great machines in which people are interchangeable parts. The goal is *efficient* production. From the boundless view, factories are learning organisms in which people are the most important part, the part that learns. The goal is *wise* (ever more efficient and effective) production. Toyota has a boundless view of automating tasks. Rather than trying to get the most out of each machine tool, it tries to get the most out of each full day’s work. A full day’s work is the effort a team member can put forth over a long period without ill effect.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

was changed to:

“From the **temporal** view of modern economics and management science, factories are great machines in which people are interchangeable parts. The goal is *efficient* production. From the boundless view, factories are learning organisms in which people are the most important part, the part that learns. The goal is *wise* (ever more efficient and effective) production. Toyota **production teams take** a boundless view of **automation**. Rather than trying to get the most out of each machine tool, **they try** to get the most out of each full day’s work. A full day’s work is the effort a team member can put forth over a long period without ill effect.”

Appendix B, *Rapid Tool Setting*, title

Deleted title, which effectively merged this subsection with the *Machine Tools* subsection.

Appendix C, The Forgotten Role of Octagons, fourth paragraph

Changed “**the boundless ends of** poetry (**Beauty**) and philosophy (**the Truth**)” to “poetry and philosophy” in the first sentence.

Appendix C, *On the Philosophy Wall*, first paragraph, second through last sentences

“In pointing up, Plato tells us to pursue **Wisdom by pursuing Beauty, Wholeness, Justice, and the Truth**. In holding his hand parallel to the ground, Aristotle tells us to know the world **around us**. The octagon is part of a symbol of the two-part reason of Plato and Aristotle, **which involves finding and solving temporal problems:**”

were changed to:

“In pointing up **while walking forward**, Plato tells us to pursue **the boundless ends of poetry, philosophy, jurisprudence, and theology**. In holding his hand parallel to the ground **while standing flat-footed**, Aristotle tells us to know the world **as it currently is**. The octagon is part of a symbol of the two-part reason of Plato and Aristotle:”

Appendix C, *On the Philosophy Wall*, second paragraph, first sentence

Changed “this symbol **of the two-part reason of Plato and Aristotle**” to “this symbol” in the last sentence.

Appendix C, *On the Philosophy Wall*, second paragraph, last two sentences

“**In moving forward, we repeat the sequence of finding and solving temporal problems. In doing so, we refine our reason.**”

were deleted.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix C, *On the Theology Wall*, first paragraph, last two sentences

“Pursuing the truth about this element calls for us to pursue the boundless end of deciding well, which **in turn calls for us to pursue the truth about this mysterious element.** For Roman Catholics, **the boundless end of deciding well** is Holy Wisdom (*Hagia Sophia/Logos*).”

were changed to:

“Pursuing the truth about this element calls for us to pursue the boundless end of deciding well, which **for Roman Catholics is Holy Wisdom** (*Hagia Sophia/Logos*).”

Appendix C, *On the Poetry Wall*, first paragraph

Changed “world” to “**world by pursuing the boundless ends of poetry, philosophy, jurisprudence, and theology**” in the last sentence.

Changes in Version 2013.10.15

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Changed “boundless **frames**” to “boundless **models of deciding well**” in the last sentence.

Chapter 1, *The Boundless Model of Deciding Well*, title

Changed title to “**Boundless Models of Deciding Well.**”

Chapter 4, *Academic Fields*, fourth paragraph

“The true sciences would include all fields that aim directly at the Truth. Unlike the natural sciences, the true sciences would not **imply that the beliefs and actions of people are not a part of nature. For example, we would not** exclude **game theory** from biological evolution.^s”

“^s For more about **game theory** and biological evolution, see the chapter on competing well.”

was changed to:

“The true sciences would include all fields that aim directly at the Truth, **which are all that aim at explaining what holds true for the whole of space-time.** Unlike the natural sciences, the true sciences would not exclude **human cultural evolution** from biological evolution.^s”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“For more about **this**, see the chapter on competing well.”

Appendix C, *The Forgotten Role of Octagons*, third paragraph, last sentence

“**From the boundless view**, this Tantalean image represents the mission of learning ever more about **both the world** and Wisdom.”

was changed to:

“**This** Tantalean image represents the mission of learning ever more about the **mysterious fifth element** and Wisdom.”

Appendix C, *On the Poetry Wall*, first paragraph

Changed “two-part reason” to “**the** two-part reason **of Plato and Aristotle**” in the last sentence.

Appendix C, *Black Clouds in Theology*, last paragraph

Changed “poetry and **philosophy**” to “poetry **not grounded in deciding well (sophistic art)** and **poetry grounded in deciding well (philosophical art)**” in the first sentence.

Changed “**poetry**” to “**sophistic art**” in the third sentence.

Changed “**philosophy**” to “**philosophical art**” in the fifth sentence.

Changes in Version 2013.10.16

Chapter 1, *The EOQ/RTS Example*, sixth paragraph

Changed “wrong” to “**that turned out to be** wrong” in the fourth sentence (2 occurrences).

Chapter 1, *The EOQ/RTS Example*, seventh paragraph, second and third sentences

“**In contrast, American firms were mass-producing trucks.** A Toyota supervisor named Taiichi Ohno knew that his firm would never be able to compete by making trucks in the same way as **American firms** did.”

were changed to:

“A Toyota supervisor named Taiichi Ohno knew that his firm would never be able to compete **against mass-producing American firms** by making trucks the same way **they** did.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *Steps for Building Multiple-Frame Models*, fourth paragraph

Changed “a second boundless factor of deciding well” to “the pursuit of the Truth” and “the boundless factors of deciding well” to “Wisdom and Truth” in the first sentence.

Chapter 1, *Steps for Building Multiple-Frame Models*, last paragraph

“As we shall see, it helps us find not only conflicts but also holes in our belief systems.”
was deleted.

Changes in Version 2013.10.18

Acknowledgments, third paragraph

Removed comma from the sixth sentence.

Changed “solve this problem” to “understand this apparent conflict between the truth and wisdom” in the ninth sentence.

Chapter 1, *Boundless Models of Deciding Well*, first paragraph

Changed “playing basketball well does not include swimming well” to “allocating resources well (given a fixed stock of knowledge) does not include learning well” in the last sentence.

Chapter 2, *A Grander Virtuous Circle*, first paragraph

Changed “Good products,” to “Good products, particularly good intellectual tools,” in the fourth sentence.

Chapter 3, introduction, first paragraph

Changed “practically boundless model” to “boundless model” in the first sentence.

Chapter 3, *Contemplating the Way Forward*, second paragraph

Changed “process that halts when there are fewer than six marbles in the bag” to “program” in the sixth sentence.

Changed “process” to “program” and “first three steps” to “process” in the seventh sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 3, *Overcoming Constraints in Deciding Well*, first paragraph, footnote, first three sentences

“More accurately, we can draw some conclusions about overcoming constraints in pursuing Wisdom from the much simpler case of overcoming constraints in computing the value of π as modern mathematicians define this process. From the view of modern mathematics, π is *computable*, which is to say that we can program a Turing machine, an abstract computing machine that does nothing more than follow rules, to compute π to any number of decimal places. In contrast, from the boundless view, π is computable in theory, but not in practice.”

were changed to:

“From the view of modern mathematics, π is *computable*, which is to say that we can program a Turing machine, an abstract computing machine that does nothing more than follow rules, to compute π to any number of decimal places. Recursive programs for calculating the value of π halt when they reach a given level of effort or accuracy, not the value of π . From the boundless view, π is computable in theory, but not in practice.”

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph, footnote, fourth through last sentences

“From the multiple-frame view, it takes us from the realm of mathematics to the realm of (self-referential) science. We best address the problem of computing π (well) by pursuing the boundless end of deciding well. Following this line of thinking, the timeless end of computing π (well) is a complex structure of knowledge rather than a simple number.”

were changed to:

“From the boundless view, it takes us from the realm of mathematics to the realm of the science of deciding well. We best address the problem of computing π well by pursuing the boundless end of deciding well. Following this line of thinking, the timeless end of computing π well is a complex structure of knowledge rather than a simple number.”

Chapter 3, *Public Entropy*, fourth paragraph, third and fourth sentences

“At the limit of the former, relations become logical. At the limit of the latter, links become rigid.”

were deleted.

Chapter 3, *Public Entropy*, last paragraph

Merged this paragraph with the preceding paragraph.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix A, introduction, seventh paragraph

Changed “This” to “As we shall see, this” in the last sentence.

Appendix A, introduction, ninth paragraph, footnote, last two sentences

“To find a deeper pattern within this pattern, we would need to start the sequence with a polygon of more than eight sides. We would need to enlarge the problem.”

were deleted.

Appendix A, The Big Picture, answer

Simplified answer by incorporating the second (alignment) function into the notation for a regular convex polygon.

Changes in Version 2013.10.21

Acknowledgments, last paragraph

Changed “All” to “Most” in the second sentence.

Changed “superrational, and boundless” to “and superrational” in the last sentence.

Chapter 1, Boundless Models of Deciding Well, first paragraph

Changed “use bounds to separate” to “separate” in the first sentence.

Chapter 1, *The Truth and Wisdom*, last paragraph, footnote, last three sentences

“From the view of the *process* of deciding well, we find this unity in the relations between the boundless factors of deciding well. From the view of the *boundless end* of deciding well, we find it in the relations of the facets of the boundless end of deciding well (Wisdom). As we shall see in the third chapter, this distinction corresponds to the distinction between the timeless and transcendental ends of deciding well.”

were deleted.

Chapter 4, *Modern Policy Mistakes*, third paragraph, footnote

Changed “gather” to “ought to gather” in the first sentence.

Changed “gather” to “ought to gather” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 6, Einstein's Twin Warnings, first paragraph

Changed "reason" to "[modern] reason" in the fifth sentence of the Einstein quote.

Chapter 8, Completeness, entire section

“Completeness

We may call a set of rules for pursuing the Truth that contains all of the rules we need for pursuing the Truth *complete*. We can never prove a set of rules for pursuing the Truth to be complete. This does not mean that we ought not to pursue the Truth. In theory, we collectively ought to pursue the Truth using the set of all possible rules for pursuing the Truth, which includes all possible rules for refining the set of all possible rules for pursuing the Truth. We may call such a set of rules *reasonably complete*. So conceived, the rules of boundless pragmatism appear to be reasonably complete.⁴”

“⁴ Consider the completeness of W. V. O. Quine's holistic approach to believing well: Our concept of completeness concerns the supply side of the market for tools for helping us believe well. We find conflicts in our belief systems. *The philosophy of science is philosophy enough*. Now consider the completeness of the multiple-frame approach to deciding well: Our concept of completeness concerns the supply and demand sides of the market for tools for helping us decide well. We find holes as well as conflicts in our belief systems, e.g., we see that Quine's philosophy is too narrow (Morton White's problem) and that it lacks a normative element (Jaegwon Kim's problem). *The science of science is philosophy enough if and only if it includes pursuing all boundless factors of deciding well.*”

was deleted.

Chapter 8, Eudaemonia, title and first paragraph

“Eudaemonia

Pursuing the boundless **end of** deciding well involves building superrational frameworks for supporting our current beliefs. Missing from this **structure** is a means of understanding constraints on our ability to receive and process information unconsciously. To decide well, we need to consider these constraints. Both as humans and as people living with humans, we need to consider the human condition.”

were changed to:

“**The** boundless **approach to** deciding well involves building superrational frameworks for supporting our current beliefs. Missing from this **approach as described to this point** is a means of understanding constraints on our ability to receive and process information unconsciously. To decide well, we need to consider these constraints. Both as humans and as people living with humans, we need to consider the human condition.”

Chapter 8, second to last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “minds (*psyches/souls*)” to “minds” in the first sentence.

Chapter 8, last paragraph, first sentence

“*Deciding well calls for us to reason well.*”

was deleted.

Appendix A, introduction, second paragraph, last sentence

“*From the view of the modern IQ test designers, the third object in the top row appears to be an anomaly, an object that conflicts with their current beliefs about the world.*”

was deleted.

Appendix A, introduction, fourth paragraph

Changed “an octagon that has a vertex on the rightmost point of its circumscribing circle” to “a *vertex-right-aligned octagon*” in the last sentence.

Appendix A, introduction, sixth paragraph

Changed “appear *to us*” to “appear” in the first sentence.

Appendix A, introduction, ninth paragraph

Changed “an octagon that has a vertex on the rightmost point of its circumscribing circle” to “a *vertex-right-aligned octagon*” in the fourth sentence.

Appendix A, Indispensable Forms, last paragraph, last sentence

“We presume that the most useful tools *to us in deciding well* are the most likely to be indispensable *to deciding well.*”

was changed to:

“We presume that the most useful tools are the most likely to be indispensable.”

Appendix C, On the Philosophy Wall, last paragraph, footnote

Changed “*theology* wall” to “*other three* walls” in the last sentence.

Appendix C, A Boundless View of the Whole, fourth paragraph, first two sentences

Changed “*both* mindsets *at work* in the *gestures*” to “*these two* mindsets *personified* in the *figures*” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**both at work**” to “**them**” in the second sentence.

Changes in Version 2013.10.24

Acknowledgments, last paragraph

Changed “**Most of them**” to “**The best**” in the second sentence.

Added the new last sentence:

“**Such a boundless approach can provide us with a way forward that rings truer with all that we currently know about deciding well.**”

Chapter 1, Boundless Models of Deciding Well, first paragraph

Changed “**can**” to “**tend to**” in the second sentence.

Changed “**(given a fixed stock of knowledge)**” to “**using a fixed stock of knowledge**” in the last sentence.

Chapter 1, Boundless Models of Deciding Well, last paragraph

Changed “**these** boundless ends” to “boundless ends” in the first sentence.

Chapter 2, Trade, last paragraph, last sentence

“These structures include **both** geographical clusters, such as Silicon Valley, and entire sectors, **notably the financial sector.**”

was changed to:

“These structures **currently** include geographical clusters, such as Silicon Valley and **the City of London. In time, they will include** entire sectors.”

Chapter 4, *Academic Fields*, fourth paragraph

Changed “**aim at explaining**” to “**seek to explain**” in the first sentence.

Chapter 4, *Academic Fields*, fifth paragraph

Changed “**Truth**” to “**truth**” in the last sentence.

Chapter 6, *Pursuing Eternal Oneness*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “a life” to “**purgatory**, a life” in the last sentence.

Chapter 7, The Scope of Game Theory, first paragraph, ninth and tenth sentences

“He told them that **defectors would always receive at least as much money as everyone else (hence would never be a “loser”), but that** they should aim at getting as much money as possible rather than being a “winner.” **He also told them that the ideal situation for any one player would be to be the single defector, in which case he or she would make \$95 (19 x \$5) and each of the others would make \$54 (18 x \$3 + 1 x \$0).”**

were changed to:

“He **also** told them that they should aim at getting as much money as possible rather than being a “winner.””

Chapter 8, introduction, seventh paragraph

Changed “living” to “**living and working**” in the last sentence.

Changes in Version 2013.10.28

Chapter 1, *The EOQ/RTS Example*, fifth paragraph

Changed “**pricing**” to “**evaluating**” in the fourth sentence.

Chapter 1, *The Truth and Wisdom*, fourth paragraph

Changed “**the Europeans**” to “**Europeans**” in all (4 case-insensitive occurrences).

Chapter 4, *Modern Policy Mistakes*, fourth paragraph, fifth through seventh sentences

“**In** deciding imperfectly, **we** create turbulence in the flow of economic resources. If this were all **we did in** deciding imperfectly, the amount of turbulence would tend toward a “natural” level.⁹ **We** also embed mistakes into, or reinforce mistakes in, our networks of knowledge-in-use.”

was changed to:

“**D**eciding imperfectly **creates** turbulence in the flow of economic resources. If this were all deciding imperfectly **did**, the amount of turbulence would tend toward a “natural” level.⁹ **However, it** also embeds mistakes into, or reinforces mistakes in, our networks of knowledge-in-use.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Appendix A, The Big Picture, last paragraph

Italicized the first sentence:

“Now imagine that instead of three objects in the first row, the problem on the billboard had only the first two objects.”

Appendix C, On the Philosophy Wall, first paragraph

Reversed the two images.

“In pointing up while walking forward, Plato tells us to pursue the boundless ends of poetry, philosophy, jurisprudence, and theology. In holding his hand parallel to the ground while standing flat-footed, Aristotle tells us to **know** the world **as it currently is**. **The octagon is part of a symbol of the two-part reason of Plato and Aristotle.**”

was changed to:

“**This octagon is part of a symbol of the two-part reason of Plato and Aristotle.** In pointing up **to the ceiling** while walking forward, Plato tells us to pursue the boundless ends of poetry, philosophy, jurisprudence, and theology. In holding his hand parallel to the ground while standing flat-footed, Aristotle tells us to **rationalize the current state of the world.**”

Appendix C, On the Philosophy Wall, second paragraph

Changed “the repetitive use of this symbol” to “the repetitive use of this symbol **of two-part reason**” in the first sentence.

Appendix C, On the Philosophy Wall, last paragraph

Changed “reason” to “**refining the reason of Plato and Aristotle**” in the fifth sentence.

Appendix C, On the Poetry Wall, last paragraph, end

Added the sentence:

“**As such, it is also a strategy for addressing the problem of calculating the value of π ever more wisely, hence of squaring a circle ever more wisely.**”

Appendix C, A Boundless View of the Whole, last paragraph

Changed “church on earth” to “church on earth **as currently understood by these church doctors**” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2013.10.31

Acknowledgments, last paragraph, last sentence

“Such a boundless approach can provide us with a way forward that rings truer with all that we currently know about deciding well.”

was deleted.

Chapter 1, Boundless Models of Deciding Well, third paragraph, footnote

“¹⁰ In accordance with the reasonable concept of completeness put forth in the last chapter, we may also call the timeless end of deciding well a *reasonably* boundless end.”

was changed to:

“¹⁰ More accurately, we may think of this timeless end as a *reasonably* boundless end.”

Chapter 5, *The Explicit Experiment*, last paragraph

Changed “theistic religion, this affirms a theistic” to “a Creator that we know by more than studying nature, this affirms a divinely revealed” in the fifth sentence.

Changed “the pursuit of social justice” to “social justice” and “pursuit of theistic justice” to “divinely revealed truth about justice” in the last sentence.

Changed “theistical justice” to “divinely revealed truth about justice” in the second sentence of the footnote.

Changed “corruption” to “government corruption” in the third sentence of the footnote.

Chapter 8, Reasoning Well, last paragraph, last sentence

“Pursuing this boundless end helps us use the normally unconscious parts of our minds ever more wisely.”

was changed to:

“So conceived, Eudaeonia is a boundless factor of deciding well.”

“Governing our minds well helps us use the normally unconscious parts of our minds well. In truly progressive cultures, cultures in which good people produce good products and good products produce good people, we share the best means of governing our minds well. Private and public means co-evolve.”

Appendix A, introduction, fifth paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**imagining** a scheme” to “**devising** a scheme” in the last sentence.

Appendix C, The Forgotten Role of Octagons, first paragraph

Changed “**Greek** cross” to “cross” in the sixth sentence.

Appendix C, The Forgotten Role of Octagons, last paragraph

Merged the last paragraph with the first paragraph.

Appendix C, The Forgotten Role of Octagons, new last paragraph

Changed “**the** oculus **at the center of the ceiling**” to “**this octagonal** oculus” in the first sentence.

Appendix C, On the Jurisprudence Wall, first paragraph

Changed “Pope Gregory IX sits on a” to “Pope Gregory IX sits on **what appears to be** a” in the third sentence.

Changed “ever more wisely:” to “ever more wisely **at the cost of becoming more self-aware:**” in the last sentence.

Appendix C, On the Poetry Wall, last paragraph, last sentence

“As such, it is also a strategy for addressing the problem of calculating the value of π ever more wisely, hence of squaring a circle ever more wisely.”

was reduced to a footnote.

Appendix C, A Boundless View of the Whole, first paragraph

Changed “ceiling **beyond the oculus**” to “ceiling” in the third sentence.

Appendix C, A Boundless View of the Whole, first paragraph, footnote

“**This is not to say that the forms contained within these rectilinear borders are completely rational. These forms represent models of the world. All models of the world include claims that we cannot prove formally.**”

was deleted.

Appendix C, The Role of Julius II, first paragraph

Changed “square-on-octagon platform” to “**apparent** square-on-octagon platform” in the eighth sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**program**” to “**mission**” in the last sentence.

Appendix C, *The Role of Julius II*, last two paragraphs

“Reinforcing the claim that Julius II ought to be an enlightened jurist are two subtle references to Julius II in the ceiling. The more prominent consists in the twelve wedge-shaped images of his family coat of arms, three around each of the four squares. The variety of sizes and shapes of these twelve images suggests that they are not major parts of the ceiling:

[image of Urania corner of the ceiling]

We can easily imagine that the gold lotus-blossom roundels and bands around the oculus, four circles, four squares, and arched walls are the load-bearing parts of the ceiling structure. Adding strength and resilience to this structure are twelve wedge and four hourglass fillers. Holding these “worldly” fillers in place are narrow bands decorated with the heraldic colors of Julius II. The decoration on these bands is an unknotted version of the altar form.

“The less prominent reference is the name Julius in the arch that spans the wall dedicated to jurisprudence. What makes this symbol especially telling is its location to the left and below the center of the arch as we face the wall:

[image of jurisprudence arches]

By putting this symbol below the center of this arch rather than at the center of the oculus, the authors of this room would have Julius II aspire to become an ever better jurist rather than ever more Christlike.⁹”

“We can see a reason for why the authors would have Julius II judge rather than create and judge ecclesiastical forms in the decorative bands of the imaginary load-bearing structure of the ceiling. As we enhance our talent for recognizing forms, we develop the ability to form repetitive images in our mind’s eye. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we form geometric images, such as those we see in the rectilinear bottom band. In the second, we form natural images, such as those in the middle floral band. In the third, we form images from our unconscious, such as those in the golden bands filled with grotesque images that form most of the imaginary ceiling structure. A great danger in developing this talent/genius is confusing forms that ring true with what we currently believe with forms that are truly useful in deciding well.”

were changed to:

“Reinforcing the claim that Julius II ought to be an enlightened jurist is the name Julius in the arch that spans the wall dedicated to jurisprudence.⁹ What makes this symbol

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

especially telling is its location to the left and below the center of the arch as we face the wall:

[image of jurisprudence arches]

By putting this symbol below the center of this arch rather than at the center of the oculus, the authors of this room would have Julius II aspire to become an ever better jurist rather than ever more Christlike.¹⁰

“⁹ Also reinforcing the claim that Julius II ought to be an enlightened jurist are the twelve wedge-shaped images of his family coat of arms, three around each of the four squares. The variety of sizes and shapes of these twelve images suggests that they are not major parts of the ceiling. We can easily imagine that the gold lotus-blossom roundels and bands around the oculus, four circles, four squares, and arched walls are the load-bearing parts of the ceiling structure. Adding strength and resilience to this structure are twelve wedge and four hourglass fillers. Holding these “worldly” fillers in place are narrow bands decorated with the heraldic colors of Julius II. The decoration on these bands is an unknotted version of the altar form.”

“¹⁰ We can see a reason for why the authors would have Julius II judge rather than create and judge ecclesiastical forms in the decorative bands of the imaginary load-bearing structure of the ceiling. As we enhance our talent for recognizing forms, we develop the ability to form repetitive images in our mind’s eye. The authors would have us believe that this aspect of opening our unconscious minds to consciousness occurs in three stages. In the first stage, we form geometric images, such as those we see in the rectilinear bottom band. In the second, we form natural images, such as those in the middle floral band. In the third, we form images from our unconscious, such as those in the golden bands filled with grotesque images that form most of the imaginary ceiling structure. A great danger in developing this talent/genius is confusing forms that ring true with what we currently believe with forms that are truly useful in deciding well.”

Changes in Version 2013.11.01

Chapter 1, *Ever More Complete Multiple-Frame Models*, fourth paragraph, end

Added the footnote

“¹⁷ Consider the completeness of W. V. O. Quine’s holistic approach to believing well: Our concept of completeness concerns the supply side of the market for tools for helping us believe well. We find conflicts in our belief systems. *The philosophy of science is philosophy enough*. Now consider the completeness of the boundless approach to deciding well: Our concept of completeness concerns the supply and demand sides of the market for tools for helping us decide well. We find holes as well as conflicts in our belief systems, e.g., we see that Quine’s philosophy is too narrow (Morton White’s

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

problem) and that it lacks a normative element (Jaegwon Kim's problem). *The science of science is philosophy enough if and only if it includes pursuing all boundless factors of deciding well.*"

Chapter 3, *Public Entropy*, last paragraph

Changed "begin **using this concept**" to "begin" in the last sentence.

Chapter 4, *Modern Policy Mistakes*, third paragraph

Changed "**impossibly** hard" to "**very** hard" in the last sentence.

Chapter 5, introduction, third paragraph

Changed "**Governments are**" to "**We may think of governments as**" in the first sentence.

Chapter 5, *The Explicit Experiment*, third paragraph, second sentence

Added the footnote

"This refers to Article 1, Section 2, Paragraph 3 of the United States Constitution: "Representatives and direct Taxes shall be apportioned among the several States which may be included within this Union, according to their respective Numbers, which shall be determined by adding to the whole Number of free Persons, including those bound to Service for a Term of Years, and excluding Indians not taxed, three fifths of all other Persons." This clause effectively increased the political clout of southern states in the federal government. Arguably, it not only allowed slavery to expand into new territories, but also allowed the removal of most Indians from the south."

Changes in Version 2013.11.04

Chapter 1, *Steps for Building Multiple-Frame Models*, second paragraph, footnote

Changed "can, **given our current ignorance of not only the current *quantum* state of the world but also all future *quantum* states of the world**" to "can *given our current ignorance of not only the current state of the world but also all possible future states of the world*" in the first sentence.

Chapter 4, *Refining Finding Problems to Solve*, second paragraph

Changed "**and**" to "**or**" in the second sentence.

Chapter 6, *Mystical Oneness*, second paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “others, **which encourages us to help those who suffer**” to “others” in the second sentence.

Changed “world **that we are trying to leave behind**” to “world” in the third sentence.

Chapter 7, *OODA Loop Analysis*, third paragraph

Changed “nations **in order to compete well**” to “nations” in the last sentence.

Chapter 8, last paragraph

Changed “means” to “means **of governing our minds well**” in the last sentence.

Appendix A, *The Big Picture*, second to last paragraph

Changed “**will**” to “**ought to**” in the second sentence of the block quote.

Appendix C, *On the Theology Wall*, first paragraph

Changed “**near** the center” to “**just above** the center” in the first sentence.

Appendix C, *On the Poetry Wall*, first paragraph

Changed “**Near** the center” to “**Just above** the center” in the second sentence.

Appendix C, *A Boundless View of the Whole*, third paragraph

Changed “**just below** the center” to “**at** the center” in all (2 occurrences).

Changes in Version 2013.11.05

Chapter 1, *Boundless Models of Deciding Well*, second paragraph, footnote

Changed “boundless end” to “boundless end: **encountering unimagined problems (“unknown unknowns”) provides us with opportunities to make major improvements to our models**” in the first sentence.

Chapter 8, second to last paragraph

Changed “**defined** reasoning well **as** governing our minds well” to “**claimed that** reasoning well **was a matter of** governing our minds well” in the first sentence.

Changed “**people**” to “**humans**” in the third sentence of the first footnote.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “citizens” to “humans” in the sixth sentence of the first footnote.

Chapter 8, last paragraph

“Governing our minds well helps us use the normally unconscious parts of our minds well. In truly progressive cultures, cultures in which good people produce good products and good products produce good people, we share the best means of governing our minds well. Private and public means of governing our minds well co-evolve.”

was deleted.

Appendix C, introduction, last paragraph, footnote, end

Added the sentence:

“The role of octagons, the two-part reason of Plato and Aristotle, the conflict between sophistic and philosophic art, and the meaning of the room as a whole did not.”

Appendix C, *The Role of Julius II*, first paragraph

Changed “mission of the church, which is to bring ever more” to “mission of bringing ever more knowledge of” in the last sentence.

Appendix C, *The Role of Julius II*, last paragraph, first footnote

“Also reinforcing the claim that Julius II ought to be an enlightened jurist are the twelve wedge-shaped images of his family coat of arms, three around each of the four squares. The variety of sizes and shapes of these twelve images suggests that they are not major parts of the ceiling. We can easily imagine that the gold lotus-blossom roundels and bands around the oculus, four circles, four squares, and arched walls are the load-bearing parts of the ceiling structure. Adding strength and resilience to this structure are twelve wedge and four hourglass fillers. Holding these “worldly” fillers in place are narrow bands decorated with the heraldic colors of Julius II. The decoration on these bands is an unknotted version of the altar form.”

was deleted.

Changes in Version 2013.11.19

Chapter 8, last paragraph, last footnote

Changed “Following this literal meaning” to “Accordingly” in the third sentence.

Appendix B, Inducing the Creation of Knowledge, last paragraph, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Too many yellow lights or a single red light signals too much stress to induce knowledge well.”

was changed to:

“Too many yellow lights signals too much stress to induce knowledge well. A red light signals a problem that calls for immediate attention.”

Appendix C, Black Clouds in Theology, second paragraph

Changed “a thousand years before Raphael painted this scene” to “fifteen hundred years ago” in the last sentence.

Appendix C, *Apollo and Marsyas*, title

Deleted the title, thereby combining this subsection with the the preceding subsection.

Appendix C, *The Role of Julius*, last paragraph, end

Added the subsection:

“Imagining the Designer

Imagine that you were an early sixteenth-century Roman cleric. Like most of your colleagues, you received a scholastic education. For reasons not completely clear to you at the time, you were drawn to Florentine Neoplatonism and Hermeticism. In communing with the members of this movement, rather than blazing a trail on your own, most of the symptoms of your break with medieval reality were more curious than sickening. Early in this process you began to see repeating forms in your mind’s eye. These images began with geometric forms, progressed to natural forms, and ended with surreal forms. Years of contemplating forms in geometry, nature, and your own unconscious gave you a talent for understanding symbols. This talent allowed you to excel in public relations. It also gave you an eye for true art.

“Pope Julius II so respected your talent that he assigned you the task of managing the decoration of his private library. The architectural form of this library was a mess. Not only was the room not square, not even its corners were square. As you contemplated how to bring order to this mess, you came to see your task as depicting a plan for bringing ever more knowledge of Holy Wisdom into the world.

“Your first step in depicting this strategy was choosing a symbol for the ideal frame for deciding well. You recognized that such a frame must be rational on the transcendent level: the transcendent ends of philosophy, poetry, theology, and jurisprudence are all facets of the transcendent end of deciding well. It must also be rational on the timeless level: pursuing any one boundless factor of deciding well calls for pursuing all of them. Further, you recognized that we lack the knowledge to pursue these boundless factors rationally.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“During one of your insightful reveries you imagined that an octagonal oculus captured the essence of transcendent and timeless rationality. You also imagined that the symbol of an ideal frame for deciding well must include not only this oculus but also the structure that supports it. Projecting such an ideal structure onto the imperfect ceiling of the library would distort it. The resulting asymmetries would symbolize our ignorance of how best to decide well. This insight struck you with the force of divine revelation. Accordingly, you chose to decorate this structure with repeating patterns from your early reveries.⁹ For the octagon, circles, squares, and tops of the arches, you used surreal forms on a gold field. For the parts of the arches that frame the wall frescoes, you used a gold geometric form on a blue field. In the gap between the surreal and geometric bands on the two shorter walls, you used a gold floral pattern on a blue field.

“To complete the temporal parts of the ceiling, you filled the four hourglass-shaped spaces with eight ancient Greek and Roman images that represent earth, air, wind, and water. You then filled the twelve distorted spaces between the circles, squares, and arches with the heraldry of Julius II. Finally, you cemented these twenty symbols in place with an unknotted version of the Gordian knot pattern.

“In packing so much symbolism into the ceiling, you effectively hid its meaning from medieval consciousness. To hide it more, and perhaps to disseminate it better subliminally, you hired the best young artist you could find, Raffaello Sanzio da Urbino (Raphael), to finish the work. He so surpassed your expectations that very few people now know of you, much less of your role in this great work.”

“⁹ You also chose the image of what appears to be a golden lotus blossom in a roundel to join the parts that form this ideal structure. Arguably, these roundels are symbols of divinely-inspired beliefs. For you, the question of whether such beliefs exist was never an issue. From the boundless view, the question of whether they exist is a minor issue. The major issue is whether our beliefs help us decide well.”

Changes in Version 2013.11.22

Chapter 1, *Temporal and Normative Frames*, second paragraph

Added the footnote:

“⁶ The distinction between normative and temporal is purposely jarring. As we shall see, it relates to the two-part reason of Plato and Aristotle.”

Chapter 1, *Seeing Through Apparent Miracles*, third paragraph

Changed “a timeless frame of deciding well, a frame” to “a frame” in the last sentence.

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**timeless** view” to “view” in the fourth sentence.

Entire document

Changed “**timeless**” to “**normative**” in all (37 occurrences).

Chapter 4, *Self-Similarity*, first paragraph, footnote, last two sentences

“In philosophical terms, (theory-laden) facts underdetermine theories that we use to explain causation. **We ought to choose the explanation that best helps us decide well.**”

were changed to:

“**We ought to choose the theory that best helps us decide well.** In philosophical terms, theory-laden facts underdetermine theories that we use to explain causation. **In choosing between theories that explain equally well within their own frame, we ought to choose the theory that rings truest with all that we currently know about deciding well.**”

Chapter 5, *Good Policies*, first paragraph, footnote

Changed “inventing” to “inventing **or discovering**” in the last sentence.

Added the sentence: “**For more about the distinction between inventing and discovering such forms, see Appendix A (The Science of Forms).**”

Appendix B, *Folding in Processes*, eighth paragraph

Changed “**including**” to “**which includes**” in the last sentence.

Appendix C, *On the Philosophy Wall*, first paragraph, second sentence

“**This octagon is part of a symbol of the two-part reason of Plato and Aristotle.**”

was moved ahead of the first image in this subsection. Changed punctuation in first and second sentences.

Appendix C, *On the Poetry Wall*, first paragraph

Changed “Holy Wisdom” to “**knowledge of** Holy Wisdom” in the last sentence.

Changed “**well** ever more wisely” to “ever more wisely” in the first sentence of the footnote.

Appendix C, *The Role of Julius II*, first paragraph, last sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“In managing this conflict, Julius supports neither side, but rather the mission of bringing ever more knowledge of Holy Wisdom into the world.”

was deleted.

Appendix C, *The Role of Julius II*, first paragraph, new last two sentences

“To manage this conflict well, Julius II needs to see the bigger picture. This rings true with the image of Julius as Gregory IX on the wall dedicated to jurisprudence, where the apparent square-on-octagon platform on which he sits raises him above those around him.”

were promoted to a new paragraph.

Changes in Version 2013.11.26

Preface, sixth paragraph

Changed “strategy” to “**grand** strategy” in the second sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph, footnote, last sentence

“Following this line of thinking, the normative end of computing π well is a complex structure of knowledge rather than a simple number.”

was changed to:

“*Deciding well is the boundlessly pragmatic means of squaring the circle.*”

Appendix A, *Indispensable Forms*, first paragraph, footnote

Changed “regular/irregular” to “regular **versus** irregular” and “no-transform/**yes**-transform” to “no-transform **versus** transform” in the last sentence.

Appendix C, first paragraph

Added a comma to the Sagan movie quote.

Appendix C, *The Forgotten Role of Octagons*, first paragraph

Changed “**Equally**” to “**As**” in the last sentence.

Appendix C, *On the Poetry Wall*, first paragraph, footnote

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“As such, it is also a strategy for addressing the problem of calculating the value of π ever more wisely, hence of squaring a circle ever more wisely.”

was deleted.

Appendix C, *Imagining the Designer*, fourth paragraph

Changed “a blue field” to “an azure field” in the last two sentences (2 occurrences).

Changes in Version 2013.11.30

Chapter 6, *Mystical Oneness*, second paragraph, sixth and seventh sentences

“Ethical mysticism calls for us to feel the suffering of others. Magical mysticism calls for us to deny the reality of the world.”

were changed to:

“In pursuing ethical mysticism, we feel the suffering of others. In pursuing magical mysticism, we deny the reality of the world.”

Appendix C, *The Forgotten Role of Octagons*, third paragraph, last sentence

“This scene depicts a female representation of Wisdom (*Urania*, the Greek muse of astronomy) moving the mysterious element that keeps the heavens in motion (*celestial aether*).”

was changed to:

“This scene depicts a female representation of Wisdom (*Urania*, the Greek muse of astronomy) moving the mysterious element that sets or keeps the heavens in motion (*celestial aether*). On a deeper level, it depicts a belief about the relation between mind and matter: mind sets or keeps matter in motion.”

Appendix C, *On the Philosophy Wall*, end

Added the sentence:

“From the boundless view, both are symbols of squaring the circle: the first is philosophical and the second sophist.”

Appendix C, *Imagining the Designer*, second paragraph, sixth and seventh sentences

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“**Projecting such an** ideal structure onto the imperfect ceiling of the library would distort it.”

were changed to:

“**Mapping the normative parts of this** ideal structure onto the imperfect ceiling of the library would **greatly** distort **the temporal parts.**”

Appendix C, *Imagining the Designer*, last paragraph

Changed “**effectively** hid” to “hid” in the second sentence.

Changes in Version 2013.12.07

Acknowledgments, fifth paragraph

Changed “our success to our ability to **decide (act and learn)**” to “**much of** our success to our ability to learn” in the third sentence.

Preface, tenth paragraph

Changed “**boundless** complements” to “**decision science** complements” in the first sentence.

Preface, last paragraph

Changed “**boundless** approach” to “approach” in the last sentence.

Chapter 1, Boundless Models of Deciding Well, first paragraph

Changed “**allocating resources** well **using a fixed stock of knowledge** does not include **learning** well” back to “**playing basketball** well does not include **swimming** well” in the last sentence.

Chapter 2, introduction, last paragraph, last two sentences

“This chapter offers **boundless** complements to the modern economic concepts of wealth, consumption, trade, production, taxation, and profit, **which we may use to become more effective in deciding well.** The decision science concepts help us become more effective and the modern economic concepts help us become more efficient.”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“This chapter offers **decision science** complements to the modern economic concepts of wealth, consumption, trade, production, taxation, and profit. **The decision science concepts help us explain the world and the modern economic concepts help us predict it. The decision science concepts help us become more effective and the modern economic concepts help us become more efficient.**”

Chapter 4, *Self-Similarity*, first paragraph, footnote, last four sentences

“**More than one explanation may fit what we can sense. We ought to choose the theory that best helps us decide well. In philosophic terms,** theory-laden facts underdetermine theories that we use to explain causation. In choosing between theories that explain equally well within their own frame, we ought to choose the theory that rings truest with all that we currently know about deciding well.”

were changed to:

“**Theory-laden facts underdetermine theories that we use to explain causation. In choosing between theories that explain equally well within their own frame, we ought to choose the theory that rings truest with all that we currently know about deciding well. In other words, more than one explanation may fit what we can sense. We ought to choose the theory that best helps us decide well.**”

Chapter 5, *The Explicit Experiment*, last paragraph

Changed “**divinely** revealed truth” to “**claimed** revealed truth” in the last sentence.

Chapter 6, *Mystical Oneness*, first paragraph, last sentence

“**Satisfying this need allows us to** experience awe, rapture, and bliss.”

was changed to:

“**In** satisfying this need, **we** experience awe, rapture, and bliss.”

Chapter 6, *Worldly Benefits of Detachment*, last paragraph

Changed “mythic” to “**now** mythic” in the second sentence.

Chapter 7, *OODA Loop Analysis*, second paragraph

Changed “**Further,** it gave them **more** time” to “**It also** gave them time” in the last sentence.

Chapter 7, *OODA Loop Analysis*, third paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Boyd later used his OODA loop model to address the normative problem of living well. This called for defining **a normative end of competing well**. Boyd defined his concept of the normative end of competing well to be improving our fitness, as an organic whole, to shape and cope with an ever-changing environment. **It also called for adding a learning function to the basic cycle. Boyd expanded the orientation element to incorporate a learning function that includes not only our experiences but also our genetic heritage, cultural traditions, and tools for analyzing and synthesizing. Finally, it called for defining our relations with each other.** Boyd argued that we form groups on all scales up to and including nations.”

was changed to:

“Boyd later used his OODA loop model to address the normative problem of living well. This called for defining **what it is to win, for adding a learning function to his OODA loop, and for defining our relations with each other.** Boyd defined “winning” to be improving our fitness, as an organic whole, to shape and cope with an ever-changing environment; **added a learning function to the orientation step; and** argued that we form groups **for competing well** on all scales up to and including nations.”

Chapter 7, *The Grandest Possible Strategy*, footnote

Added the date “**on February 27, 1860**” to the first sentence.

Chapter 7, *The Scope of Biological Evolution*, end

Added the following footnote:

“¹⁸ **The boundless approach to deciding well uses a boundless heuristic algorithm. Using a metaphor made famous by philosopher Daniel Dennett (*Darwin’s Dangerous Idea: Evolution and the Meanings of Life*, New York, Simon & Schuster, 1995), this algorithm is an infinitely large crane that contains countless hooks for pulling ourselves higher. At any given time some of these hooks appear to us to be in line with the apex of the crane and others do not. Further, some of these hooks appear to be supported by the crane structure and others do not. We ought to be open to using whatever hooks best help us decide well. We also ought to take care not to let our passion for Wholeness overcome our reason.**”

Appendix C, *On the Philosophy Wall*, last three sentences

“The first is a boundless symbol of renaissance, of endlessly refining everyday thinking. The second is a modern symbol of the Renaissance, of a refinement of the knowledge of first-century BCE Roman engineer Vitruvius. **From the boundless view, both are symbols of squaring the circle: the first is philosophical and the second sophist.**”

were changed to:

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“From the boundless view, both are symbols of renaissance. The first is a boundless symbol of renaissance, of endlessly refining everyday thinking. The second is a modern symbol of the Renaissance, of a refinement of the knowledge of first-century BCE Roman engineer Vitruvius. Both are also symbols of squaring the circle. The first relates to the *philosophy* of Plato and Aristotle. The second relates to the *sophistry* of Protagoras and Vitruvius.”

Appendix C, *On the Jurisprudence Wall*, first paragraph

Changed “more self-aware” to “**ever** more self-aware” in the last sentence.

Appendix C, *Black Clouds in Theology*, last paragraph

Changed “philosophical” to “philosophic” in all (2 occurrences).

Appendix C, *A Boundless View of the Whole*, first paragraph

Changed “forms” to “**internal** forms” in the last sentence.

Appendix C, *Imagining the Designer*, first paragraph, last two sentences

“This talent **allowed you to excel in public relations. It also** gave you an eye for true art.”

were changed to:

“This talent gave you an eye for true art.”

Appendix C, *Imagining the Designer*, third paragraph

Changed “**boundless factor of deciding well**” to “**of these normative ends**” in the third sentence.

Changed “**boundless factors**” to “**normative ends**” in the last sentence.

Appendix C, *Imagining the Designer*, last paragraph

“**In packing so much symbolism into the ceiling, you hid its meaning from medieval consciousness. To hide it more, and perhaps to disseminate it better subliminally,** you hired the best young artist you could find, Raffaello Sanzio da Urbino (Raphael), to **finish the work**. He so surpassed your expectations that very few people now know of you, much less of your role in this great work.”

was changed to:

“**After completing the essential structure of the ceiling** you hired the best young artist you could find, Raffaello Sanzio da Urbino (Raphael), to **complete the decoration of the**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

room. He so surpassed your expectations that very few people now know of you, much less of your role in this great work.”

Changes in Version 2013.12.10

Acknowledgments, third paragraph, second sentence

“For a third of a century Fred was extremely generous with his most precious resource, his time.”

was deleted.

Chapter 1, *Temporal and Normative Frames*, second paragraph, footnote

“The distinction between normative and temporal is purposely jarring. As we shall see, it relates to the two-part reason of Plato and Aristotle.”

was deleted.

Chapter 1, *Boundless Models of Deciding Well*, last paragraph

Changed “*Wisdom and the boundless end of believing well the Truth*” to “*Wisdom*” in the second sentence.

Chapter 1, *Ever More Complete Multiple-Frame Models*, last paragraph

Changed “view of this complex approach” to “complex view of this approach” in the last sentence.

Chapter 2, introduction, first paragraph

Changed “boundless view to deciding well” to “boundless view” in the sentence.

Changed “boundless tools” to “normative tools” in the last two sentences (2 occurrences).

Chapter 2, introduction, last paragraph

“Modern economics² provides us with temporal concepts, which we may use to become more efficient in solving given problems. This chapter offers decision science complements to the modern economic concepts of wealth, consumption, trade, production, taxation, and profit. The decision science concepts help us explain the world and the modern economic concepts help us predict it. The decision science concepts help

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

us become more effective and the modern economic concepts help us become more efficient.”

was changed to:

“Modern economics² provides us with temporal concepts, which we may use to know better the world *as we find it*. In contrast, the boundless approach to deciding well also provides us with normative concepts, which we may use to help know better the world *as we may form it*. This chapter offers normative complements to the modern economic concepts of wealth, consumption, trade, production, taxation, and profit.”

Chapter 2, Wealth, first paragraph

Changed “the boundless view” to “the normative view of boundless decision science” in the last sentence.

Chapter 2, Wealth, last paragraph, last three sentences

“From a modern view of science, the relevant question is which story best predicts how we will act. From the boundless view, it is which story best helps us decide well. *In explaining the world, we seek to know the world not as we find it, but rather as we may form it.*”

were changed to:

“From the temporal view of modern economic science, the relevant question is which story best predicts how we will act. From the normative view of boundless decision science, it is which story best helps us find problems to solve.”

Chapter 2, Consumption, first paragraph

Changed “the boundless view” to “the normative view of boundless decision science” in the third sentence.

Chapter 2, Tools for Pursuing Pleasure and Joy, last paragraph

Changed “the boundless view” to “the normative view of boundless decision science” in the seventh sentence.

Chapter 2, Trade, last paragraph

Changed “the boundless view” to “the normative view of boundless decision science” in the second sentence.

Chapter 2, Taxation, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “the **boundless** view” to “the **normative** view of **boundless decision science**” in the fifth sentence.

Chapter 2, Profit, first paragraph

Changed “the **boundless** view” to “the **normative** view of **boundless decision science**” in the third sentence.

Chapter 4, title and introduction

Replaced one sentence Einstein subtitle quote with the full quote from the first paragraph. Merged the truncated first paragraph with the second paragraph of the introduction.

Chapter 4, Self-Similarity, last paragraph

Changed “**cultures, and**” to “**and**” in the last sentence.

Chapter 6, Schweitzer quotes (subtitle and *Mystical Oneness* subsection)

Added footnote to subtitle quote in the HTML version. Deleted the first of the three paragraphs from the subsection quote, which was the same as the quote in the subtitle.

Appendix C, *On the Poetry Wall*, first paragraph

Changed “**the boundless ends of poetry, philosophy, jurisprudence, and theology**” to “**four boundless factors of deciding well**” in the last sentence.

Changes in Version 2013.12.12

Preface, eighth paragraph

Changed “currently know” to “currently **believe we** know” in the last sentence.

Chapter 1, *Temporal and Normative Ends*, first paragraph, third sentence

“**Because events have bounds in time, we** may call these *temporal ends*.”

was changed to:

“**We** may call these **temporally-bounded** ends *temporal ends*.”

Chapter 1, *Temporal and Normative Ends*, first paragraph, third sentence

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

“Because processes have no bounds in time, we may call these *normative ends*.”

was changed to:

“We may call these **temporally-boundless** ends *normative ends*.”

Chapter 3, *Public Order*, last paragraph

“Policymakers who take the boundless approach promote a climate that helps people decide well. This gives rise to a **boundless** concept of public order that concerns how well people decide. From this view, increasing *boundless* public order is always good. Increasing *temporal* public order is good when there is too little of it and bad when there is too much of it. Too little **temporal** order threatens the networks of knowledge-in-use that bind us together. Too much **temporal** order reduces the need for people to decide well, which, over time, reduces the ability of people to decide well.”

was changed to:

“Policymakers who take the boundless approach promote a climate that helps people decide well. This gives rise to a **normative** concept of public order that concerns how well people decide **across the whole of space-time**. We may call this **temporally-boundless normative concept** *boundless order*. We may also call its **temporally-bounded counterpart** *current order*. From this view, increasing **boundless** public order is always good. Increasing **current** public order is good when there is too little of it and bad when there is too much of it. Too little **current** order threatens the networks of knowledge-in-use that bind us together. Too much **current** order reduces the need for people to decide well, which, over time, reduces the ability of people to decide well.”

Chapter 5, *Pursue Boundless, not Current Order*, first paragraph

Changed “boundless order” to “boundless **public** order” in the first sentence.

Changed “boundless order” to “boundless **public** order” in the second sentence.

Appendix C, *Imagining the Designer*, third paragraph

Changed “**the transcendent end of deciding well**” to “**Holy Wisdom**” in the first sentence.

Changed “**normative** ends” to “ends” in the last sentence.

Appendix C, *Imagining the Designer*, fifth paragraph

Changed “**ancient Greek and Roman** images” to “**classical** images” in the first sentence.

Changed “cemented” to “**metaphorically** cemented” in the last sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changes in Version 2013.12.14

Chapter 1, *Temporal and Normative Frames*, title

Changed title to “*Temporal and Normative Models*.”

Chapter 1, *Temporal and Normative Models*, first two paragraphs

“Addressing the problem of choosing frames well by deciding well calls for understanding what makes frames useful in deciding well. Useful frames are frames that help us achieve our ends. Some ends concern events. We may call these temporally-bounded ends *temporal ends*. Winning a basketball game is a temporal end. **We may call frames that help us achieve temporal ends *temporal frames*.**

“Other ends concern processes. We may call these temporally-boundless ends *normative ends*. Playing basketball well is a normative end. We may call frames that help us achieve normative ends *normative frames*.

were changed to:

“Addressing the problem of choosing frames well by deciding well calls for understanding what makes frames useful in deciding well. Useful frames are frames that help us achieve our ends. Some ends concern events. We may call these temporally-bounded ends *temporal ends*. Winning a basketball game is a temporal end. Other ends concern processes. We may call these temporally-boundless ends *normative ends*. Playing basketball well is a normative end. We may call **frames that help us achieve temporal ends *temporal frames* and frames that help us achieve normative ends *normative frames*.**”

Chapter 1, *Temporal and Normative Models*, last two paragraphs

Merged these two paragraphs.

Chapter 1, *The EOQ/RTS Example*, first two paragraphs

“We refine frames by removing waste from them. Sources of waste include terms that refer to more than one concept and pairs of concepts defined in terms of each other. We may call structures useful in reducing our sensations to concepts from which we have removed all waste that it is currently economic for us to remove *models*.

“In keeping with our distinction between temporal and normative frames, we may distinguish between temporal and normative models. We can see this distinction in two models for helping us to decide how often to set up machine tools. The first is the

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

temporal *economic order quantity* (EOQ) model. The second is the normative *rapid tool setting* (RTS) model.”

were moved to the end of the preceding subsection.

Chapter 2, Wealth, last paragraph

“In thinking about what we need to live well, we need to consider the self-fulfilling aspect of the stories we use to explain our needs. If our story is that we are naked apes, we evolve as if we are naked apes. In contrast, if our story is that we are ignorant people seeking to act wisely, we will evolve as if we are ignorant people seeking to act wisely. From the temporal view of modern economic science, the relevant question is which story best predicts how we will act. From the normative view of boundless decision science, it is which story best helps us find problems to solve.”

was deleted.

Chapter 3, *Overcoming Constraints in Deciding Well*, first paragraph

Changed “ π ” to “ π , the modern counterpart to the classical problem of squaring a circle” in the last sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, third paragraph

Changed “biological” to “evolutionary” in the last sentence.

Chapter 3, *Three Approaches to Policy*, second paragraph

Changed “biological” to “evolutionary” in the first sentence.

Chapter 3, *Public Order*, second paragraph

Changed “biological” to “evolutionary” in the first sentence.

Chapter 3, *Overcoming Constraints*, last paragraph

Removed italics from the last sentence: “Deciding well is the boundlessly pragmatic means of squaring the circle.”

Chapter 5, *The Explicit Experiment*, last paragraph

Changed “claimed” to “claims of” in the last sentence.

Chapter 6, introduction, last paragraph

Changed “reconcile” to “move ever closer to reconciling” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Added the sentence:

“We can begin by considering Abraham Maslow’s humanistic approach to understanding our spiritual needs.”

Chapter 7, *Boyd's Grand Strategy*, last paragraph

Changed “modern **biological**” to “modern” in the first sentence.

Changed “modern-**biological/modern-dialectical**” to “modern” in the first sentence.

Chapter 8, second paragraph

Changed “**bounded**” to “**temporal**” in all (3 occurrences).

Chapter 8, third paragraph

Changed “solution” to “**solutions**” in the first sentence.

Changes in Version 2013.12.16

Chapter 1, introduction, second paragraph

Changed “**a** book” to “**this** book” in the second sentence.

Chapter 1, *Seeing Through Apparent Miracles*, first paragraph

Changed “**for the same cost**,” to “,” in all (3 occurrences).

Chapter 1, *The Truth and Wisdom*, last paragraph

Changed “**boundless** factors” to “factors” in the sixth sentence.

Chapter 1, *Steps for Building Multiple-Frame Models for Deciding Well*, first paragraph

Changed “**universally useful and inexhaustible** factors of deciding well **that we can never have in excess**” to “**boundless** factors of deciding well” in the second sentence.

Chapter 1, *Steps for Building Multiple-Frame Models for Deciding Well*, first paragraph

Changed ““**boundless factor**”” to “**facet of Wisdom**” in the third sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 1, *Ever More Complete Multiple-Frame Models*, first paragraph

Changed “do so” to “**can** do so” in the sixth sentence.

Chapter 2, *Tools for Deciding Well*, first paragraph

Changed “nothing, **who blindly follow their leaders or culture,**” to “nothing” in the last sentence.

Chapter 3, *Contemplating the Way Forward*, first paragraph

Changed “**six**” to “**three**” in all (3 occurrences).

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, third paragraph

Changed “**describe**” to “**predict**” in the last sentence.

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, fourth paragraph

Changed “**describe**” to “**predict**” in the first sentence.

Chapter 3, *A Boundlessly Pragmatic Interpretation of Quantum Mechanics*, seventh paragraph

Changed “**We**” to “**Using this class, we**” in the first sentence.

Chapter 4, *Academic Fields*, first paragraph

Changed “**Similarly**” to “**In creating academic fields**” in the last sentence.

Chapter 7, introduction, first paragraph

Changed “**all of us are not**” to “**none of us is**” in the second sentence.

Appendix C, *A Boundless View of the Whole*, first paragraph, fourth through seventh sentences

“The second thing to notice **is the mishmash of different forms separated by** plain borders. With the exception of the borders along the non-parallel walls and the cursive borders within the large square with the crossed-keys symbol of the papacy at its center, these borders are either parallel or perpendicular to the two parallel walls. **These** parallel and perpendicular borders form rectangles that contain locally coherent forms. By far the most complex of these forms is the large square containing the symbol of the papacy at its center.”

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

were changed to:

“The second thing to notice **are the fields formed by the** plain borders. With the exception of the borders along the non-parallel walls and the cursive borders within the large square with the crossed-keys symbol of the papacy at its center, these borders are either parallel or perpendicular to the two parallel walls. **Most of** these parallel and perpendicular borders form rectangles that contain locally coherent **geometric** forms. The major exception is the large square containing the symbol of the papacy at its center, **which contains more complex geometric forms.**”

Changes in Version 2013.12.21

Chapter 4, *Modern Policy Mistakes*, fourth paragraph, last footnote

Added Richard Hudson to the footnote reference.

Chapter 5, *The Explicit Experiment*, third paragraph

“This clause effectively increased the political clout of southern states in the federal government. **Arguably, it not only allowed slavery to expand into new territories but also allowed the removal of Indians from the south.**”

were changed to:

“This clause effectively increased the political clout of southern states in the federal government **enough not only to maintain slavery in the southern states but also to expand it into new territories.**”

Appendix A, title quote

Returned the second title quote:

““**In mathematics the art of proposing a question must be held of higher value than solving it.**” — *Georg Cantor*”

“**2 Cantor, Georg, “De aequationibus secundi gradus indeterminatis” (Doctoral dissertation, University of Berlin, 1867).**”

Appendix A, introduction, third to last paragraph, footnote, end

Added the following sentences:

“**Also note that N2 in the first transformation process and Y2 in the second process are line segments, which we may or may not classify as (degenerate) polygons. To keep**

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

things simple, this analysis stops at N3 for both processes. Going further would add little to our understanding of the boundlessly pragmatic relation between mathematics and science.”

Appendix A, introduction, second to last paragraph, footnote, last two sentences

“Note that this analysis ignores degenerate polygons and non-Euclidean geometries. Including them here would add little to our understanding of the boundlessly pragmatic relation between mathematics and science.”

were deleted.

Appendix C, A Boundless View of the Whole, second paragraph, first sentence

Added the footnote:

“^s If this floor were a representation of the modern rational mindset rather than the medieval rational mindset, the large working area of the room would represent the modern natural sciences and the surrounding rectangles would represent all other fields. From the boundless view, the source of the problem with the modern rational mindset concerns pursuing the truth about the current state of the world in which we live rather than the truth about the world in which we live. To learn how such views affect induction, read Nelson Goodman’s *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1955). To begin to understand the effects of the misuse of such views, consider the effects of assuming that the distribution of changes in financial asset prices are normally distributed, an all too common assumption based on the belief that there is no direction to cultural evolution.”

Appendix C, *Imagining the Designer*, first paragraph

“Years of contemplating forms in geometry, nature, and your own unconscious gave you a talent for understanding symbols. This talent gave you an eye for true art.”

were changed to:

“Years of contemplating forms in geometry, nature, and your own unconscious gave you a talent for using superrational forms, forms for pursuing Beauty.”

Appendix C, *Imagining the Designer*, fifth paragraph

Changed “Finally, you” to “You” in the last sentence.

Changes in Version 2013.12.24

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Chapter 8, last paragraph, first paragraph

Changed “**human** mind” to “mind” in all (2 occurrences).

Changed “**humans**” to “**people**” in all (2 occurrences).

Appendix A, introduction, seventh paragraph

Changed “**transformation** process rather than the results of **transforming objects**” to “process rather than **the process itself**” in the fourth sentence.

Appendix A, introduction, eighth paragraph

Changed “**process rather than the results of the transforming objects**” to “**process**” in the first sentence.

Appendix A, introduction, eleventh paragraph, footnote

Changed “**algebraically**” to “**mathematically**” in all (2 occurrences).

Appendix C, A Boundless View of the Whole, second paragraph, footnote, end

Added the sentence:

“**To begin to understand the effects of the misuse of such views, consider the effects of assuming that the distribution of changes in financial asset prices are normally distributed, an all too common assumption based on the belief that there is no direction to cultural evolution.**”

Appendix C, *Imagining the Designer*, first paragraph

Changed “**sickening**” to “**distressing**” in the fourth sentence.

Changes in Version 2013.12.28

Acknowledgments, last paragraph

Changed “self-referential” to “**independent of beliefs and circumstances, hence self-referential**” in the last sentence.

Chapter 1, *The EOQ/RTS Example*, second paragraph

Changed “**The** temporal **frame of the** EOQ model **includes the assumption**” to “**In using the** temporal EOQ model, **we presume**” in the first sentence.

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**assumption**” to “**presumption**” in the second sentence.

Chapter 1, *The EOQ/RTS Example*, last paragraph

Changed “**rapidly**” to “**well**” in the last sentence.

Chapter 1, *The Truth and Wisdom*, last paragraph

Changed “**knowledge resources**” to “**facets of Wisdom**” in the fourth sentence.

Chapter 1, *Seeing Through Apparent Miracles*, third paragraph, first two sentences

“Similarly, Toyota has performed apparent miracles by **quickly pushing back its efficiency frontiers.**” **It has thrived by** learning well.”

were changed to:

“Similarly, Toyota has performed apparent miracles by learning well.”

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph, last sentence

Inserted the sentence:

“**We learn to handle unexpected events ever more wisely.**”

Chapter 1, *Ever More Complete Multiple-Frame Models*, fourth paragraph, footnote

Changed “*boundless factors of deciding well*” to “*facets of the boundless end of deciding well*” in the last sentence.

Appendix A, introduction, seventh paragraph

Changed “**this** superficial approach” to “**such a** superficial approach” in the last sentence.

Appendix A, *Indispensable Forms*, last paragraph, end

Added the paragraph:

“**From the modern view of Kurt Gödel, mathematics underlies science and more than logic underlies mathematics. From the boundless view, mathematics underlies science and science is self-referential, hence mathematics is a form of science. The transcendental end of mathematics is complete knowledge of the set of all forms that are indispensable to pursuing the boundless end of deciding well.**”

Appendix C, introduction, first paragraph

Boundless Pragmatism

Changes from May 15, 2008 through December 31, 2013

Changed “**Beauty**” to “**Wisdom**” in the last sentence.

Appendix C, *Imagining the Designer*, last paragraph

Changed “**great work**” to “**magnum opus**” in the last sentence.

Changes in Version 2013.12.31

Acknowledgments, last paragraph

Changed “**The best**” to “**They**” in the second sentence.

Preface, fifteenth paragraph

Changed “biological evolution” to “biological evolution **to include cultural evolution**” in the last sentence.

Chapter 1, *The Truth and Wisdom*, fifth paragraph, footnote, end

Added the sentence:

“**To learn more about the limits of temporal language, read Nelson Goodman’s *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1955).**”

Appendix C, *A Boundless View of the Whole*, second paragraph, footnote, third sentence

“**To learn how such views affect induction, read Nelson Goodman’s *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1955).**”

was deleted.
