

Boundless Pragmatism, An Invariant View of Deciding Well

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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

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

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“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 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.”

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.

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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:

“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.

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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.”

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.”

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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: “⁴ 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 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

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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”

“**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:

“**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

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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:

“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

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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

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.

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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.

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.

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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.

Acknowledgments, fifth paragraph

Changed “ways we cope” to “ways in which we cope” in the fifth sentence.

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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

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.

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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 “stock**brokers**” 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).

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

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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.”

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

Changed “Nineteenth century” to “Nineteen-**century**” in the first sentence.

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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.

Changed “role liberty” to “role that liberty ” in the last sentence.

Appendix A, *Folding in Processes*, first paragraph

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Changed “assembl**ing**” 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.

Chapter 1, Temporal versus Timeless Values, fourteenth paragraph

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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, **p**oor 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

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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.**”

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“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.”

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.**”

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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 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.**”

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Changes in Version 2009.02.12

Preface, fifth paragraph

Changed “we use” to “we use **to express our beliefs**” in the last sentence.

Preface, thirteenth paragraph

Changed “concept**ion**” 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.

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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

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

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release of “frozen” stress. In contrast, boundless liberalism uses **the** timeless concept of **deciding well** to help us find problems to solve.”

Changes in Version 2009.02.18

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.”

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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

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.**”

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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

“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

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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

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

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“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?”

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

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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.”

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

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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 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

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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-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.

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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

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

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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

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

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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

“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:

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“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.””

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

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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 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

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Deleted the footnote:

“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, Balanced Excellence, title

Changed the title to “Experiencing the Mysterious.”

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.

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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.

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:

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“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 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.

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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

“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

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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

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.

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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.

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

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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.

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.

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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 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-

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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 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.

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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.

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:

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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

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.

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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.

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

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“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

“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

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“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.**”

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

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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

“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.

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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:

“**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?**”

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“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*.”

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

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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. 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 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

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“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.**”

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

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(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).”

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

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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.

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.

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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.

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

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“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.

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 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.”

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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.

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

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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 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

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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 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

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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 “From” to “*In contrast, from*” 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, *temporal* view” in the first sentence.

Chapter 1, Temporal versus Timeless Values, tenth and eleventh paragraphs

“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

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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 Kuhnsian 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.

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

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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 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”

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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 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.

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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.”

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*

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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

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

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“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).

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.

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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 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

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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 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.

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“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.”

was changed to:

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“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

“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

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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

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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.”

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

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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.”

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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

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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

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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.

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“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.

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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 “Deciding” in the last sentence.

Chapter 1, Choosing Frames Well, first paragraph

Changed “Consider” to “For example, consider” in the third sentence.

Changed “means” to “concerns” in the last sentence.

Chapter 1, Choosing Frames Well, second paragraph

Changed “means” to “concerns” in the last sentence.

Chapter 1, Choosing Frames Well, third paragraph

Changed “means” to “concerns” 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”

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Chapter 1, Temporal versus Timeless Frames, last paragraph, last three sentences

“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.

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Chapter 2, *Tools for Pursuing Wisdom*, fifth paragraph

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.

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Appendix B, *Heroic Death*, third paragraph

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

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“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; *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”

“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”

“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.

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“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.¹¹”

“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.**”

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.

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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.

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Chapter 3, *Beauty as a Guide to Deciding Well*, last paragraph

“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.

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Changed “*are born to be*” to “*are*” in the last sentence.

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*

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ought to explain what modern economists call Kondratieff waves, business cycles, and speculative bubbles.”

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

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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.”

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.”

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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.

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.

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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.

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*.

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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.”

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.

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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

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

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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 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.**”¹¹

“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**

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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.””

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

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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.

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.

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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.

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

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Changed “brief” to “**a** brief” in the first sentence.

Chapter 2, Pleasure and Pain, first paragraph, footnote

Changed “brains interpret” to “brain interpre**s**” 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

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

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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 deny~~ing~~” in the first sentence.

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

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 proof~~ing~~ 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.

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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

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:

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“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)**.”

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

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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:

“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

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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

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.

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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, 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

“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 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

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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

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.

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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.

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.

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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 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

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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.”

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.

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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 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.

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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 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.

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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.

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

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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.”

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.”

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Chapter 3, *Beauty as a Guide to Believing Well*, second paragraph, first sentence

“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.”

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 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.”

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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.

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

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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.

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

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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.”

“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.

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“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.”

“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.”

“⁶ 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.”

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“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

Changed “ring of **T**Truth” to “ring of **t**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

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“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 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.

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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

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

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“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.”

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

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Changed “sol~~ving~~ 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:

“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., *Figments 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

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“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. 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

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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

“**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”

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“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:

“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”

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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).

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 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

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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.

Chapter 2, The Need for Timeless Science, first paragraph, second footnote

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“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 timeless stories consisting of at least one story for each of the timeless factors of

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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

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than one 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

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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 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

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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.”

was reduced to a footnote to the last sentence of the first paragraph:

“² 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).

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Appendix A, *Inducing Knowledge*, fourth paragraph

Changed “general effects are” to “general effects include” in the last sentence.

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,

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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.”

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:

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“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 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**

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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 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

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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.

“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

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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 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*

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Visions: Ideological Origins of Political Struggles (New York: William Morrow, 1987).”

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

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

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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 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

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

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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 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.

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“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.

“*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

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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 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 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)

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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 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,

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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 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*.”

“⁶ 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).”

“⁷ 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:

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“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 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

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“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 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.

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“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

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.

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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 descendents.”

Chapter 3, Conclusion, last paragraph, last three sentences

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

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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.”

Changes in Version 2009.12.27

Preface, eighth paragraph

Changed “ring of **T**ruth” to “ring of **t**ruth” 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

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Changed “ring True” to “ring true” in the tenth 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, *Beauty as a Guide to Deciding Well*, second paragraph

Changed “evolutionary” to “biological” in the first sentence.

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-

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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.”

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.

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“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.

“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.
