Changes on 31 January 2015

Chapter 1, *Temporal and Normative Models*, sixth paragraph, last sentence

"With such great advantages, it is not surprising that the knowledge of how to set up tools rapidly swept through industry."

was deleted.

Chapter 1, *Temporal and Normative Models*, last paragraph, last sentence

"Learning to set up tools well is a key part of this strategy."

was changed to:

"With such great benefits, variants of the Toyota system swept through industry."

Chapter 1, Boundless Models of Deciding Well, first paragraph, last sentence

"*Pursuing normative ends well does not include choosing normative ends well.*"

was italicized.

Chapters 2-7 (Pursuing Wisdom Well) in the abridged Kindle version

Replaced the financial asset price change and beauty definition teasers with the quantum mechanics and biological evolution teasers. This reflects the addition of the new preface, which made the financial asset price change teaser redundant.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, seventh paragraph, first footnote, last sentence

"People working together perfectly act as if they were a single person deciding perfectly, much as weakly interacting bosons at their lowest energy state act as if they were a single boson."

was deleted.

Chapter 3, The Elephant in the Room, first paragraph, footnote, last sentence

"A video of this lecture is available online at <http://www.newton.ac.uk/webseminars/pg+ws/2005/gmr/gmrw04/1107/penrose/index.html> (19 November 2013)."

was deleted.

Chapter 5, Good Policies, first paragraph, footnote

Changed "the tacit knowledge problem first discovered by Michael Polyani" to "Michael Polyani's tacit knowledge problem" in the first sentence.

Changed "non-Euclidean and fractal geometries" to "fractal geometry" in the second sentence.

Appendix C, *On the Jurisprudence Wall*, second paragraph

Changed "Solomon" to "King Solomon" in the last sentence.

Appendix C, *An Esoteric Strategy*, first paragraph

Changed "bringing ever more Holy Wisdom (*Hagia Sophia/Logos*) into the world" to "pursuing Holy Wisdom (*Hagia Sophia/Logos*)" in the last sentence.

Appendix C, *Imagining the Chief Designer*, second paragraph

Changed "bringing ever more Holy Wisdom into the world" to "pursuing Holy Wisdom" in the fourth sentence.

Appendix C, A Boundless View of the Whole, second paragraph, footnote

Changed "a temporal model of the strategy for bringing ever more Holy Wisdom into the world" to "a "temporally flattened" model of the strategy for pursuing Holy Wisdom" in the second sentence.

Changed "in this flattened model represents to "represents" in the third sentence.

Appendix C, The Problem of Heraclitus, third paragraph

Changed "made the perspective of the fresco as a whole more than rational, more than any Brunelleschi-mirror view of the world" to "changed a Brunelleschi-mirror-view model of pursuing the Truth into an instrumental one" in the last sentence.

All endnotes with online references

Checked the link and update the date-last-referenced field.

Front Material

Added a half title page and frontispiece to the printed version.

Eliminated the note to readers in Kindle versions by incorporating the material into the preface.

Changed the current preface into an introduction by changing the title and dropping the signature lines.

Added the following preface in front of the acknowledgments:

Preface

Boundless Reason, A Universal Strategy for Deciding Well is a popular work in the science of deciding well. In this science, we learn to decide ever more wisely by applying the process of deciding well to itself. To do so reasonably, we need to address Kurt Gödel's proof that more than logic underlies mathematics. From the boundless view of this nascent science, the whole of science is the process of refining everyday thinking. Beneath the whole of science is the science of forms (mathematics). Beneath this is a form of reason based not only on logic but also on the beauty that comes from removing ever more waste from the process of deciding well. To decide well, we use logical models of the world to predict well. Predictions help us evaluate solutions to given problems. We also use beautiful models, models that ring true with all that we currently know about deciding well, to explain well. Explanations help us find beautiful problems to solve, problems that ring true with all that we currently know about deciding well.

We can see the need for this boundless approach to science most clearly in the failure of received science (logical empiricism) to explain learning well. To judge what we need to learn, we need to judge what we need to do. From the view of received science, judging what we need to do is beyond the realm of science. From the boundless view, it is a basic part of science: The world as we find it is much smaller than the world as we may form it, which includes not only the current state of the world but also all possible future states of the world. To decide well, we base research programs for predicting well on theories for predicting well, and research programs

for explaining well on a strategy for deciding well. Using theories that predict well to explain tends to blind us to the best problems to solve, which are those in which we create knowledge resources to replace non-knowledge resources.

The reason of received science (logic) helps us to make the best use of what we currently know. In contrast, the reason of boundless science helps us to make the best use of all that we can learn. Consider the problem of calculating π. Logic tells us to use the means not yet disproven to be the best for calculating π to our chosen level of accuracy. Boundless reason also tells us to learn to calculate π ever more wisely. For calculating π to a million decimal places, logic is reason enough. For calculating π to a quintillion places, boundless reason is much better than logic alone.

Unlike received science, we may apply boundless science to itself. We may test boundless science by basing our rights and responsibilities on it. (As we shall see, we may do so by refining Benjamin Franklin's grand experiment.) We may also test the assumption that boundless science is natural. For example, we may test whether changes in financial asset prices are random. From the view of modern financial economics, they are. From the boundless view, they are not: The self-similar process of deciding well embeds mistakes into our networks of knowledge-in-use. Releasing these mistakes by deciding well creates turbulence in financial markets. The distributions of changes in financial asset prices are more like those of human wealth and income than those of human height and weight.

In this book, I provide a strategy for learning everything, not a theory for learning everything, much less a theory of everything. If I have done my job well, people will read it more than once. Upon each reading, they will find better problems to solve, if not in it then in what new they bring to it. In refining this strategy, I found better problems to solve across a wide variety of fields. Among these problems are a dynamic analogue of (and alternative to) Pareto optimality, the state of the world in which it is impossible to make any person better off without making at least one other person worse off; a grand strategy superior to that used by the coalition forces in the First Gulf War; and an entropy-based concept of biological evolution that includes human culture. Such is a universal strategy for learning how to decide ever more wisely.

S. M. Harris
January 31, 2015

Changes on 12 February 2015

Preface, first paragraph

Changed "proof" to "two-theorem proof" and "." to ":" in the third sentence.

Changed "of the world" to "of parts of the world" in the seventh sentence.

Chapter 1, *Temporal and Normative Models*, sixth paragraph

Changed "what they did that turned out to be wrong three hours ago" to "what they did three hours ago that turned out to be wrong" in the last sentence.

Changed "what they did that turned out to be wrong three weeks ago" to "what they did three weeks ago that turned out to be wrong" in the last sentence.

Chapter 1, *Steps for Building Boundless Models*, first paragraph

Changed "this model" to "the resulting model" in the last sentence.

Chapter 8, Eudaemonia, last paragraph

Changed "enlightened self-interest, cooperation, and freedom" to "freedom, cooperation, and self-interest enlightened by boundless reason" in the last sentence.

Changes on 4 March 2015

Chapter 8, Three Types of Reason, first paragraph

Added the footnote:

"[2] Near the end of the culminating chapter of *The Ascent of Man* (Boston: Little Brown, 1973), author Jacob Bronowski claimed John von Neumann discovered that we will never be able to reduce some multiple-decider problems to models that Turing machines can solve. Von Neumann called these problems *games*. Bronowski went on to claim that near the end of von Neumann's life, he had started to work on a means of expanding the scope of his theory of games to provide us with "a plan, a procedure, as a grand overall way of life—what in the humanities we would call a system of values." Regrettably, von Neumann died before completing this work. Arguably, the grand strategy for deciding well put forth in this book is what von Neumann had in mind. The reason that von Neumann believed that we can never reduce his games to models that Turing

machines can solve is that he treated values as given. From the boundless view, deciders are not only free to change their values, but also both expected and encouraged to change them for the better. The better any group of deciders decide, the lower the amount of waste in their solutions to temporal problems. At the limit of this process of removing waste, all deciders act as if they are a single decider. In theory, we can reduce any temporal problem to a decision-tree model, which is a type of model that Turing machines can solve. Modern game theory provides us with heuristic models. We ought to decide formally when to use heuristic models. *We ought to maximize our satisficing.*"

Changes on 16 March 2015

Preface, fourth paragraph

Changed "itself" to "itself completely without contradiction" in the first sentence.

Deleted the third sentence: "(As we shall see, we may do so by refining Benjamin Franklin's grand experiment.)"

Chapter 8, Three Types of Reason, first paragraph, footnote

"[2] Near the end of the culminating chapter of *The Ascent of Man* (Boston: Little Brown, 1973), author Jacob Bronowski claimed John von Neumann discovered that we will never be able to reduce some multiple-decider problems to models that Turing machines can solve. Von Neumann called these problems *games*. Bronowski went on to claim that near the end of von Neumann's life, he had started to work on a means of expanding the scope of his theory of games to provide us with "a plan, a procedure, as a grand overall way of life—what in the humanities we would call a system of values." Regrettably, von Neumann died before completing this work. Arguably, the grand strategy for deciding well put forth in this book is what von Neumann had in mind. The reason that von Neumann believed that we can never reduce his games to models that Turing machines can solve is that he treated values as given. From the boundless view, deciders are not only free to change their values, but also both expected and encouraged to change them for the better. The better any group of deciders decide, the lower the amount of waste in their solutions to temporal problems. At the limit of this process of removing waste, all deciders act as if they are a single decider. In theory, we can reduce any temporal problem to a decision-tree model, which is a type of model that Turing machines can solve. Modern

game theory provides us with heuristic models. We ought to decide formally when to use heuristic models. *We ought to maximize our satisficing*."

were changed to:

"[2] Near the end of the culminating chapter of *The Ascent of Man* (Boston: Little Brown, 1973), author Jacob Bronowski claimed John von Neumann discovered that we will never be able to reduce some multiple-decider problems to models that we can calculate. He called these problems *games*. The reason that von Neumann believed that we can never reduce his games to models that we can calculate is that he treated values as given. From the boundless view, deciders are not only free to change their values, but also both expected and encouraged to change them for the better. The better any group of deciders decide, the lower the amount of waste in their solutions to temporal problems. At the limit of this process of removing waste, all deciders act as if they are a single decider. In theory, we can reduce any temporal problem to a decision-tree model, which is a type of model that we can calculate. Bronowski went on to claim that near the end of von Neumann's life, he had started to work on a means of expanding the scope of his theory of games to provide us with "a plan, a procedure, as a grand overall way of life—what in the humanities we would call a system of values." Regrettably, von Neumann died before completing this work."

Changes on 31 March 2015

Appendix C, Black Clouds in Theology, second paragraph, first three sentences

"Above the octagonal oculus in the ceiling, four putti push up and another four pull down a circle that contains a symbol of the papacy, the mysterious fifth element, and Wisdom. Within this Tantalean scene, the dispute within the Roman Catholic pursuit of Holy Wisdom concerns an imbalance between poetry and theology:"

was changed to:

"On the ceiling, this dispute concerns an imbalance between poetry and theology. Above the center of the oculus is a circular symbol of the papacy, the mysterious fifth element, and Wisdom. Four putti push up and another four pull down this circle, which always remains just beyond our grasp:"

Appendix C, Black Clouds in Theology, second paragraph

Changed “up the papal symbol” to “up” in the old third (new fourth) sentence.

Changed “down this symbol” to “down” in the old fifth (new sixth) sentence.

Changed “his” to “its” in the old sixth (new seventh) sentence.

Appendix C, Black Clouds in Theology, fourth paragraph

Changed “not grounded in pursuing Wisdom” to “grounded in ourselves” in the first sentence.

Appendix C, *The Role of Julius II*, fourth paragraph

Changed “the arch as we face the wall” to “this arch” in the second sentence.

Appendix C, *The Role of Julius II*, fourth paragraph, last sentence

“By putting this symbol below the center of this arch rather than at the center of the oculus, the designers of this room would have Julius II aspire to become an ever better jurist rather than ever more Christlike.”

was changed to:

“By putting it to the left of the center of this arch, the designers of this room would have Julius II aspire to become an ever-wiser jurist who chooses to err on the side of philosophy rather than that of theology. In contrast, putting it either at the apex of this arch or above the oculus would have him become ever more Christlike.”

Appendix C, *The Role of Julius II*, fifth paragraph

Changed “ever better” to “ever-wiser” in the first sentence.

Appendix C, The Problem of Heraclitus, first paragraph

Changed “to the right of Parmenides, the pre-Socratic philosopher who denied the world was in flux” to “in the central foreground” in the second sentence.

Changed “the image of empty steps, and added the figure of Heraclitus contemplating the three-level (square-within-a-square-within-a-square) symbol of pure rationality beneath his feet” to “the image of the left half of these steps, and added the figure of Heraclitus contemplating the symbol of pure rationality beneath his feet (the square-within-a-square-within-a-square)” in the last sentence.

Appendix C, The Problem of Heraclitus, third paragraph

Changed "model of pursuing the Truth into an instrumental one" to "depiction into an instrumental model of pursuing Wisdom" in the last sentence.

Appendix C, The Problem of Heraclitus, last paragraph, first sentence

"On a deeper level, the figure of Heraclitus visually links the symbol of reason beneath his feet to that slightly above his head."

was changed to:

"Further, the figure of Heraclitus visually links the symbol of pure rationality beneath his feet to the symbol of the complex reason of Plato and Aristotle slightly above his head."

Changes on 4 April 2015

Appendix C, *On the Philosophy Wall*, first paragraph

Changed "which forms part of a" to "the most significant part of the" in the second sentence.

Changed "the current state of the world" to "the world as we find it" in the last sentence.

Appendix C, Black Clouds in Theology, second paragraph

Changed "beliefs about the pursuit of Wholeness and the true pursuit of Wholeness" to "ardent and true beliefs" in the last sentence.

Changes on 8 April 2015 (Printed Version)

Changed the outer and gutter margins. Removed two blank paragraphs from the Heading References section, thereby advancing the Competing Well reference to the first page. No changes were made to the Kindle unabridged, Kindle abridged, or website abridged versions.

Changes on 11 April 2015 (Printed Version)

Converted endnotes to footnotes. Adjusted images in Appendix C to accommodate this change.

Changes on 14 April 2015

Appendix C, *On the Jurisprudence Wall*, first paragraph

Changed "this theme" to "this square-within-an-octagon-within-a-square theme" in the first sentence.

Appendix C, *On the Jurisprudence Wall*, second and third paragraphs

Reversed positions of the last two paragraphs. (Indented these paragraphs in Kindle versions.)

Appendix C, *On the Jurisprudence Wall*, printed version

Reversed sides of all three images. Increased the size of the last two images by 10%.

Appendix C, *On the Theology Wall*, first paragraph

Changed "ceiling theme" to "two-cross/eight-ray ceiling theme" in the first sentence.

Appendix C, *On the Poetry Well*, first paragraph

Changed "eight-part ceiling theme and the two-part reason theme" to "ceiling and philosophy wall themes" in the first sentence.

Changes on 30 April 2015

Appendix C, *An Esoteric Strategy*, first paragraph

Changed "depictions" to "symbols" in the first sentence.

Appendix C, The Problem of Heraclitus, third paragraph

Changed “depiction” to “picture” in the first sentence.

Appendix C, The Problem of Heraclitus, end

Added the paragraph:

“We cannot imagine what we may invent or discover in a thousand years. However, we can imagine the relations between the pursuits of facets of Wisdom, which yield a sense of beauty that extends beyond our ability to reduce our judgments to images or words. In time, we develop ever better tools for refining our sense of beauty. People who follow us will develop better brains for using these tools. Given these facts about the world as we may form it, we ought to embrace the mysterious, to reach beyond our grasp.”

Changes on 14 May 2015

Preface, first paragraph

Changed “beautiful” to “what appear to us to be beautiful” in the last sentence.

Chapter 1, *Seeing Through Apparent Miracles*, first paragraph

Changed “,” to “as efficiently,” in the last sentence of the first three bullet points.

Chapter 1, *The Truth and Wisdom*, fourth paragraph

Changed “*atratus*” to “*Cygnus*” and “*chenopis*” to “*Chenopis*” in the sixth sentence.

Appendix A, The Big Picture, third paragraph

Changed “use to describe the pattern in the top row” to “use” in the first sentence.

Changed “two cases” to “two cases for *f*()” in the second sentence.

Changes on 22 May 2015

Preface, fourth paragraph

Changed "boundless science" to "its reason" in the third sentence.

Introduction, third paragraph

Changed "pursuing" to "seeking" in the third and fourth sentences (2 occurrences).

Chapter 3, A Boundless Interpretation of Quantum Mechanics, seventh paragraph, footnote, last two sentences

"Assuming that self-conscious forms of artificial intelligence can exist and that such beings would likely evolve much faster than we humans do, we would be wise to program all self-improving forms of artificial intelligence to decide well using the boundless approach. We would also be wise to begin to cooperate with these potential people by building a culture that they would want to join."

were moved to the end of the last footnote in the three types of reason section of the last chapter.

Chapter 4, Modern Policy Mistakes, first paragraph, footnote, last sentence

"This is consistent with the historical inverse relation between the rate of unemployment and the rate of inflation commonly known as the Phillips curve."

was deleted.

Chapter 6, *Heroic Death*, first paragraph

Changed "unchecked" to "relatively unchecked" in the first sentence.

Chapter 6, *Heroic Death*, second paragraph

Changed "Those" to "People" in the second sentence.

Chapter 7, *E-M Theory*, second paragraph, footnote

Changed "*The*" to "*Boyd: The*" in the first sentence.

Chapter 7, The Scope of Biological Evolution, second paragraph, footnote

Changed "Recent" to "Among other things, recent" in the first sentence.

Chapter 8, Three Types of Reason, first paragraph, footnote

"Near the end of the culminating chapter of *The Ascent of Man* (Boston: Little Brown, 1973), author Jacob Bronowski claimed John von Neumann discovered that we will never be able to reduce some multiple-decider problems to models that we can calculate. He called these problems *games*. The reason that von Neumann believed that we can never reduce his games to models that we can calculate is that he treated values as given. From the boundless view, deciders are not only free to change their values, but also both expected and encouraged to change them for the better. The better any group of deciders decide, the lower the amount of waste in their solutions to temporal problems. At the limit of this process of removing waste, all deciders act as if they are a single decider. In theory, we can reduce any temporal problem to a decision-tree model, which is a type of model that we can calculate. Bronowski went on to claim that near the end of von Neumann's life, he had started to work on a means of expanding the scope of his theory of games to provide us with "a plan, a procedure, as a grand overall way of life—what in the humanities we would call a system of values." Regrettably, von Neumann died before completing this work."

was moved to the end of the last paragraph of the extraordinary anomaly section of the seventh chapter.

Appendix A, introduction, ninth paragraph

Changed "segment" to "segment in the first step" in the third sentence.

Changed "process" to "two-step process" in the last sentence.

Appendix B, Temporal Details, first paragraph, footnote, last three sentences

"Note that the Toyota strategy for learning how to produce ever more leanly does not depend on any particular machine tool technology. When Ohno first envisioned his means of producing ever more leanly, there were no industrial robots. This strategy should accommodate additive manufacturing machines as easily as it did robots."

were deleted.

Appendix C, A Boundless View of the Whole, fourth paragraph

Changed "ceiling" to "ceiling and walls" in the second sentence.

Changes on 2 June 2015

Introduction, fifth paragraph

Changed "choosing temporally bound problems to solve is the problem" to "deciding well is that" in the first sentence.

Appendix C, *The Role of Julius II*, first paragraph

Changed "traditional ecclesiastic forms and those who invent or discover ecclesiastic forms" to "religious forms and those who promote religious experience" in the last sentence.

Appendix C, *The Role of Julius II*, second paragraph

Changed "between the Holy Spirit and the monstrance on the alter" to "above the monstrance on the alter but below the image of the Holy Spirit" in the last sentence.

Appendix C, *The Role of Julius II*, last paragraph, footnote

"[7] Why did the designers chose this myth rather than that of Icarus to depict the danger of hubris? Perhaps to remind Julius II that no one is immune from it. Marsyas was the most virtuous of satyrs, a person to whom Alcibiades compared Socrates in Plato's Symposium. In contrast, Icarus was the callow son of Daedalus, the designer of the Minoan Labyrinth."

was deleted.

Appendix C, The Problem of Heraclitus, fourth paragraph, footnote, last sentence

"As we saw in the third chapter, the boundless approach to calculating π to a sextillion decimal places is better than either the engineering approach (using the best currently known means) or the modern evolutionary approach (waiting for a feasible means to evolve)."

were changed to:

"As we saw in the third chapter, the boundless approach to squaring the circle is the boundless approach to deciding well. In learning to square the circle (calculate π) ever more wisely, the boundless approach (deciding well) is far better

than either the engineering approach (using the best currently known means) or the modern evolutionary approach (waiting for a feasible means to evolve)."

Changes on 10 June 2015

Publisher's Description, Author's Note, first paragraph (web page)

Changed "In time," to "Over time," in the third sentence.

Preface, second paragraph

Changed "not only the current state of the world but also all" to "all" in the fourth sentence.

Preface, fourth paragraph

"Unlike received science, we may apply boundless science to itself completely without contradiction. We may test boundless science by basing our rights and responsibilities on it. We may also test the assumption that its reason is natural. For example, we may test whether changes in financial asset prices are random. From the view of modern financial economics, they are. From the boundless view, they are not: The self-similar process of deciding well embeds mistakes into our networks of knowledge-in-use. Releasing these mistakes by deciding well creates turbulence in financial markets. The distributions of changes in financial asset prices are more like those of human wealth and income than those of human height and weight."

was moved to the end of the new Proving Boundless Reason section of the last chapter and changed to:

"We may test boundless reason by basing our rights and responsibilities on it. We may also test the assumption that it is natural. For example, we may test whether changes in financial asset prices are random. From the view of modern financial economics, they are. From the boundless view, they are not: The self-similar process of deciding well embeds mistakes into our networks of knowledge-in-use. Releasing these mistakes by deciding well creates turbulence in financial markets. The distributions of changes in financial asset prices are more like those of human wealth and income than those of human height and weight."

Chapter 1, Ever More Complete Boundless Models, last paragraph

"With each new boundless factor that we add to our multiple-frame model, we gain greater understanding of what it is to decide well. With this greater understanding, we can more readily judge whether the temporal problems that we consider ring true with what all that we currently believe we know about deciding well. When one does, we have found what appears to us to be a beautiful problem to solve. We can then use bounded models that predict well within the domain of this problem to help us judge solutions to it."

was changed to:

"With each new boundless factor that we add to our multiple-frame model, we gain greater understanding of what it is to live well. With this greater understanding, we can more readily judge whether we have found beautiful problems to solve. After we find what we believe is a beautiful problem to solve, we can use bounded models that predict well within its domain to judge solutions to it. In taking this approach to living well, we consider not only the supply but also the demand side of the market for tools for helping us live well."

Chapter 8, introduction, first paragraph

Changed "rules for relating beliefs well *rules of reason* and the rules that we use to help us relate beliefs well *the rules of reason*" to "*rules of reason*" in the last sentence.

Chapter 8, Three Types of Reason, title and first three paragraphs

"**Three Types of Reason**

Excellence in relating beliefs depends on the type of end we choose to pursue. When we pursue temporal ends, we seek to solve temporal problems well. We may call the set of rules that we use to relate beliefs well in solving temporal problems well *the rules of logic* (after the rules of reason that Aristotle used to relate beliefs).

"When we pursue the normative end of living well, we seek not only to solve temporal problems well but also to find them well. We may call the set of rules that we use to relate beliefs well within this approach to living well *the rules of modern dialectics* (after the modern interpretation of the form of discourse that Plato used to explain what normative ends are not).

"When we pursue the boundless end of deciding well, we seek not only to solve temporal problems well but also to find them ever more wisely. We may call the set of rules that we use to relate beliefs well within this approach to deciding well *the rules of boundless reason*.[2]"

were changed to:

"**The Evolution of Reason**
Using knowledge resources does not use them up. From this, and the need for living beings to compete well for scarce resources, emerges a natural tendency for living beings to create ever better means of replacing scarce non-knowledge resources with knowledge resources in their pursuits of living well.

"In creating ever better means of replacing scarce non-knowledge resources with knowledge resources in living well, some living beings learn to use abstract symbolic tools for thinking well to plan and learn from their actions. In learning to use these tools, which we commonly call language, these living beings become people. Language greatly speeds the process of replacing non-knowledge resources with knowledge resources in living well.

"Over time, people learn to develop rules for relating beliefs well. We may call these *rules of reason*.

"Excellence in relating beliefs depends on the type of end people choose to pursue. When people pursue temporal ends, they seek to solve temporal problems well. We may call the rules that people use to relate beliefs well in solving temporal problems well *rules of logic* (after the rules of reason that Aristotle used to relate beliefs).

"When people pursue the normative end of living well, they seek not only to solve temporal problems well but also to find these problems well. We may call the rules that people use to relate beliefs well within this approach to living well *the rules of modern dialectics* (after the modern interpretation of the form of discourse that Plato used to explain what normative ends are not).

"When people pursue the boundless end of deciding well, they seek not only to solve temporal problems well but also to find these problems ever more wisely. We may call the rules that they use to relate beliefs well within this approach to deciding well *rules of boundless reason*.[2]"

"**Proving Boundless Reason**"

Chapter 8, Proving Boundless Reason, first paragraph

Changed "proving formally" to "formally proving" in the first sentence.

Appendix A, Ideal Forms, last paragraph, footnote, last sentence

"From the boundless view, the alternative to proving formally that reason includes intuition is disproving empirically the usefulness of boundless reason in living well, which we can do by basing our sovereign rights story on it."

was changed to:

"The boundlessly reasonable alternative is trying to disprove empirically the usefulness in living well of "genetic" algorithms based on the beauty that emerges from removing ever more waste from the process of deciding well."

Appendix A, The Big Picture, entire section (printed version only)

Changed the case from the first-person plural to the second-person singular. This corrects a reversal of the 12/24/14 update in the 1/31/15 version.

Appendix C, *The Role of Julius II*, last paragraph

Changed "to the left of the apex of this arch" to "there" in the third sentence.

Appendix C, The Problem of Heraclitus, last paragraph

Changed "In time," to "Over time," in the third sentence.

Changed "mysterious" to "unknown" in the last sentence.

Changes on 30 June 2015

Publisher's Description page, Author's Note, third paragraph (online version only)

"In the final episode of *The Ascent of Man* ("The Long Childhood"), Jacob Bronowski claimed that it is the business of science to inherit the moral imagination. This rings true with the boundless form of reason that I describe. In contrast, a new Age of Enlightenment led by people who pretend to be philosopher kings does not."

was deleted.

Business of Science page (online version only)

Effectively deleted this page by removing hyperlinks to it.

Preface, first paragraph

Inserted the following paragraphs:

"In the spring of 1955, John von Neumann agreed to deliver the 1956 Silliman lectures at Yale. He chose as his topic the mathematics of reasoning well. Fellow polymath Jacob Bronowski described what he sought as "a language in which the activities of different parts of the brain have somehow to be interlocked and made to match so that we devise a plan, a procedure, as a grand overall way of life—what in the humanities we would call a system of values" (Bronowski, J., *The Ascent of Man*, Boston: Little Brown, 1973, p. 433). From Bronowski's view, it is the business of science to inherit the moral imagination (p. 432).

"To complete his study of reasoning well, von Neumann needed to expand the scope of his theory of games into the timeless realm of grand strategy. In his theory of games, he assumed we do not change what we value. To explain reasoning well, he needed to relax this assumption, which tends to blind us to learning to decide ever more wisely. Regrettably, he died before completing this work. In 1958, Yale University Press published his incomplete lectures under the title *The Computer and the Brain*."

Preface, new fifth paragraph

Changed "calculating" to "computing" in all (four occurrences).

Changed "calculate" to "compute" in all (one occurrence).

Preface, closing

Changed the date line to a location line.

Chapter 1, Boundless Models of Deciding Well, first paragraph

Changed "EOQ/RTS model" to "EOQ/RTS example" in the first sentence.

Chapter 1, Boundless Models of Deciding Well, last paragraph, footnote

"From this view of deciding well, we base our values on what we need to know in order to pursue Wisdom well. Taking this view does not call for us to abandon the study of texts. It only calls for us to interpret texts in the light of pursuing Wisdom."

was changed to:

"Daniel Dennett distinguished between normative belief systems based on science, which he called *cranes*, and those based on theology, which he called *skyhooks*. The boundless approach to deciding well is an infinitely large crane, not a skyhook. Using this approach, we base our values on what we need to know in order to pursue Wisdom well. This does not call for us to abandon the study of texts. It only calls for us to interpret texts in the light of pursuing Wisdom."

Chapter 2, *Overcoming Constraints in Deciding Well,* first paragraph, footnote

Changed "calculating" to "computing" in the second sentence.

Chapter 2, *Overcoming Constraints in Deciding Well,* last paragraph

Changed "calculating" to "computing" in the second sentence.

Chapter 7, *An Extraordinary Anomaly*, last paragraph, footnote

Changed ")" to ", p. 432)" in the first sentence.

Changed "calculate" to "compute" in third sentence.

Chapter 8, The Evolution of Reason, third paragraph, first sentence

"Over time, some living beings who use language to plan and learn from their actions (people) learn to develop rules for relating beliefs well."

was changed to:

"We may call living beings who have learned to use language to plan and learn from their actions *people*. Over time, some people learn to develop rules for relating beliefs well."

Chapter 8, Eudaemonia, third paragraph, first footnote, end

Added the sentence: "In the brains of such minds, the activities of different parts of the brain have somehow been "interlocked and made to match so that we devise a plan, a procedure, as a grand overall way of life—what in the humanities we would call a system of values" (Bronowski, J., *The Ascent of Man*, Boston, Little Brown, 1973, p. 433)."

Chapter 8, Eudaemonia, third paragraph, last footnote

Changed "Accordingly" to "So conceived" in the third sentence.

Appendix A, introduction, sixth paragraph

Changed "calculating" to "computing" in the first sentence.

Appendix A, introduction, ninth paragraph, footnote

Changed "degenerate polygon" to "polygon" in the last sentence.

Appendix C, The Problem of Heraclitus, fourth paragraph, footnote

Changed "calculate" to "compute" in third sentence.

Changes on 21 July 2015

Chapter 1, Choosing Frames Well, first paragraph, first sentence

"As people,[4] we reduce our sensations of the world to concepts, which we arrange into structures that help us solve what we believe are similar sorts of problems."

"[4] The term 'people' in this work refers to beings bound to live well in the flow of time who use language to plan and learn from their actions."

was changed to:

"We may call beings bound to live well in the flow of time who have learned to use language to plan and learn from their actions *people*.[4] As people, we reduce our sensations of the world to concepts, which we arrange into structures that help us solve what we believe are similar sorts of problems."

"[4] This definition does not rule out artificial or extraterrestrial beings."

Chapter 1, Boundless Models of Deciding Well, last paragraph, footnote

Changed "theology, which he called *skyhooks*" to "miracles, which he called skyhooks (*Darwin's Dangerous Idea*, New York: Simon and Schuster, 1996)" in first sentence.

Chapter 8, The Evolution of Reason, first paragraph

Changed "living beings" to "beings bound to live well in the flow of time (living beings)" and "ever better" to "better" in last sentence.

Chapter 8, The Evolution of Reason, second paragraph

Changed "some living beings" to "some living beings (people)" in first sentence.

Chapter 8, The Evolution of Reason, third paragraph, first sentence

"We may call living beings who have learned to use language to plan and learn from their actions *people*."

was deleted.

Chapter 8, The Evolution of Reason, fourth paragraph

Changed "people" to "they" in the second sentence.

Changed "people" to "they" and "*the rules*" to "*rules*" in the last sentence.

Chapter 8, The Evolution of Reason, fifth paragraph

Changed "people" to "they" in the last sentences.

Changes on 25 July 2015

Chapter 8, Introduction and title to first section

"The models people use to describe the world relate beliefs about the world in ways that are useful in predicting and explaining the world. We may call excellence in relating beliefs *reason*.

"**The Evolution of Reason**"

were deleted.

Chapter 8, new introduction, last paragraph, footnote, first two sentences

"Note that this boundless synthesis of modern dialectics and instrumental analysis differs markedly from the bounded synthesis of John Dewey. Dewey claimed that Edward Bellamy's utopian novel *Looking Backward, 2000 to 1887*, which advocated nationalizing all industry and drafting all working-age citizens of the United States into an "industrial army," greatly influenced him."

were changed to:

"The rules of boundless reason are a synthesis of the rules of logic and those of modern dialectics. The result differs markedly from John Dewey's bounded synthesis of modern dialectics and pragmatism. Dewey claimed that Edward Bellamy's *Looking Backward, 2000 to 1887* greatly influenced him. In this utopian novel, Edward Bellamy advocated nationalizing all industry and drafting all working-age citizens of the United States into an "industrial army.""

Changes on 31 July 2015

Chapter 1, *Temporal and Normative Frames*, first paragraph, footnote, last six sentences

"As we shall see, we ought to use 'temporal' (temporal positive) models to help us judge solutions to given problems: Using normative models to predict is foolish. Further, we ought to use 'normative' (timeless normative) models to help us find better problems to solve: Using temporal models to decide formally wastes knowledge resources. This is not to say that temporal normative models play no role in deciding well. Deciding well calls for us to use these less thorough means heuristically. It also calls for us to decide formally when to use them. In terms made popular by economist Herbert Simon, it calls for us to maximize our satisficing."

were changed to:

"As we shall see, deciding well calls for us to use "temporal" (temporal positive) models to help us judge solutions to given problems: Using normative models to predict is foolish. Further, deciding well calls for us to use "normative" (timeless normative) models to help us find better problems to solve: Using temporal models to explain tends to blind us to the best problems to solve. *If we use such models to help us find problems to solve, deciding well calls for us to do so heuristically. It also calls for us to decide formally when to use them. In terms made popular by economist Herbert Simon, deciding well calls for us to maximize our satisficing*."

Chapter 1, Boundless Models of Deciding Well, last paragraph, footnote

Changed "This" to "This approach" in fourth sentence.

Changes on 8 August 2015

Preface, first two paragraphs

"In the spring of 1955, John von Neumann agreed to deliver the 1956 Silliman lectures at Yale. He chose as his topic the mathematics of reasoning well. Fellow polymath Jacob Bronowski described what he sought as "a language in which the activities of different parts of the brain have somehow to be interlocked and made to match so that we devise a plan, a procedure, as a grand overall way of life—what in the humanities we would call a system of values" (Bronowski, J., *The Ascent of Man*, Boston: Little Brown, 1973, p. 433). From Bronowski's view, it is the business of science to inherit the moral imagination (p. 432).

"To complete his study of reasoning well, von Neumann needed to expand the scope of his theory of games into the timeless realm of grand strategy. In his theory of games, he assumed we do not change what we value. To explain reasoning well, he needed to relax this assumption, which tends to blind us to learning to decide ever more wisely. Regrettably, he died before completing this work. In 1958, Yale University Press published his incomplete lectures under the title *The Computer and the Brain*."

were changed to:

"In the spring of 1955, John von Neumann agreed to deliver the 1956 Silliman lectures at Yale. He chose as his topic the mathematics of reasoning well. To complete his study of reasoning well, von Neumann needed to expand the scope of his theory of games into the timeless realm of grand strategy. In his theory of games, he assumed we do not change what we value. To explain reasoning well, he needed to relax this assumption, which tends to blind us to learning to decide ever more wisely. Regrettably, he died before completing this work. In 1958, Yale University Press published his incomplete lectures under the title *The Computer and the Brain*.

"Fellow polymath and colleague Jacob Bronowski described what von Neumann sought as "a language in which the activities of different parts of the brain have somehow to be interlocked and made to match so that we devise a plan, a procedure, as a grand overall way of life—what in the humanities we would call a system of values" (Bronowski, J., *The Ascent of Man*, Boston: Little Brown, 1973, p. 433). So conceived, it is the business of science to inherit the moral imagination (p. 432). This rings true with Albert Einstein's claim that the whole of science is nothing more than a refinement of everyday thinking."

Acknowledgments, last paragraph

Changed "self-referential, self-similar, and invariant" to "invariant" in fourth sentence.

Chapter 1, *Temporal and Timeless Frames*, first paragraph, footnote, last eight sentences

"Note that the jarring juxtaposition of the terms 'temporal ends' and 'normative ends' serves to remind us that the concepts to which they refer lie within the frame of deciding well. As we shall see, deciding well calls for us to use "temporal" (temporal positive) models to help us judge solutions to given problems: Using normative models to predict is foolish. Further, deciding well calls for us to use "normative" (timeless normative) models to help us find better problems to solve: Using temporal models to explain tends to blind us to the best problems to solve. *If we use such models to help us find problems to solve, deciding well calls for us to do so heuristically. It also calls for us to decide formally when to use them. In terms made popular by economist Herbert Simon, deciding well calls for us to maximize our satisficing*."

were promoted to a new second paragraph and changed to:

"The jarring juxtaposition of the terms 'temporal' and 'normative' here serves to remind us that the concepts to which they refer lie within the frame of deciding well. There are actually four types of frames: temporal-positive ("temporal"), temporal-normative, timeless-positive, and timeless-normative ("normative"). As we shall see, deciding well calls for us to use temporal-positive frames to help us judge solutions to given problems and timeless-normative frames to help us find better problems to solve. Using temporal-normative frames to explain tends to blind us to the best problems to solve. *If do so, deciding well calls for us to be aware of this blindness*."

Chapter 1, Boundless Models of Deciding Well, third paragraph, footnote, first two sentences

"Here we imagine how the ideal forms of these boundless factors relate to each other. From this, we can imagine a concept of reasonableness that is the philosophical analogue of the mathematical concept of computability."

were changed to:

"From imagining how the ideal forms of these boundless factors relate to each other, we can imagine how the boundless concept of reasonableness relates to the mathematical concept of computability."

Chapter 4, *Self-Similarity*, first paragraph, end

Added the sentence: "We may call this self-similarity *weak* in that there is no simple rule for how to break down problems into smaller problems, e.g., always break down problems into problems one-fifth their size."

Chapter 8, Proving Boundless Reason, first paragraph

Changed "the Truth" to "normative ends" in first sentence.

Changed "discovering the Truth" to "achieving any given normative end" in third sentence.

Changed "knows the Truth" to "has achieved the normative end" in last sentence.

Chapter 8, Proving Boundless Reason, second paragraph

Changed "the Truth" to "normative ends" in first sentence.

Chapter 8, Proving Boundless Reason, last paragraph

Changed "self-similar" to "weakly self-similar" in fourth sentence.

Changes on 17 August 2015

Preface, second paragraph

Changed "science" to "[modern] science" in the last sentence.

Acknowledgments, sixth paragraph

Changed "forms business" back to "business forms business" in the last sentence.

Chapter 1, *Temporal and Normative Frames*, entire subsection

"***Temporal and Normative Frames***
Addressing the problem of choosing frames well by deciding well calls for understanding

what makes frames useful in deciding well. Useful frames are frames that help us achieve our ends. Some ends concern events. We may call these temporally bounded ends *temporal ends*. Winning a basketball game is a temporal end. Other ends concern processes. We may call these temporally boundless ends *normative ends*. Playing basketball well is a normative end.[6] We may call frames that help us achieve temporal ends *temporal frames* and frames that help us achieve normative ends *normative frames*.

"The jarring juxtaposition of the terms 'temporal' and 'normative' here serves to remind us that the concepts to which they refer lie within the frame of deciding well. There are actually four types of frames: temporal-positive, temporal-normative, timeless-positive, and timeless-normative. As we shall see, deciding well calls for us to use temporal-positive frames to help us judge solutions to given problems and timeless-normative frames to help us find better problems to solve. Using temporal-normative frames to explain tends to blind us to the best problems to solve. *If we do so, deciding well calls for us to be aware of this blindness.*

"Temporal and (timeless) normative frames differ in their concepts of *excellence in means*. From a temporal frame, excellence in means is *efficiency*, excellence in solving given problems. A formal decision *event* consists of formulating solutions to the given problem, evaluating these solutions, choosing a solution, and implementing the chosen solution. In contrast, from a (timeless) normative frame, excellence in means is not only efficiency but also *effectiveness*, excellence in choosing problems to solve. A formal decision *process* is the endlessly repeating cycle of (1) finding a temporal problem to solve that appears to be in line with our normative end, (2) formulating various solutions to this problem, (3) evaluating these solutions, (4) choosing a solution, (5) implementing the chosen solution, and (6) learning from the experience.[7]"

"[6] Consider the first basketball game in the 1986 film *Hoosiers*. Most residents of small town of Hickory believe that the temporal end of winning this game is the highest priority. However, the new basketball coach values the normative end of playing basketball well more highly. Over the course of the film, we learn that this is because he values the end of deciding well even more highly."

"[7] From a normative view, what we deem to be a matter of efficiency changes with the size of the problem we choose, hence speaking of efficiency without specifying the 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."

was changed to:

"***Frames Useful in Deciding Well***

Addressing the problem of choosing frames well by deciding well calls for understanding what makes frames useful in deciding well. In deciding well, we predict what will happen in parts of the world in order to assign probabilities to uncertain events, which helps us solve given problems. To do so well, we recognize that our ignorance of the world is part of the world as we find it. We also distinguish what is likely to happen from what we would like to happen. In technical terms, we use *temporal-positive frames* to predict well.

"In deciding well, we also explain the world as a whole. We do so in order to help us find the best problems to solve in pursuing what we seek. To explain well, we consider what we may learn, which calls for us to distinguish between what we seek and the constraints that prevent us from achieving what we seek. Among the most important of these constraints is time. Time prevents us from achieving all we would like to achieve, which includes learning all that we would like to learn. We choose frames unconstrained by time. In technical terms, we use *timeless-normative frames* rather than *temporal-normative frames* to decide well.[6]

"Temporal-normative frames differ from timeless-normative frames in their concepts of *excellence in means*. From a temporal-normative frame, excellence in means is *efficiency*, excellence in solving given problems. A formal decision *event* consists of formulating solutions to the given problem, evaluating these solutions, choosing a solution, and implementing the chosen solution. In contrast, from a timeless-normative frame, excellence in means is not only efficiency but also *effectiveness*, excellence in choosing problems to solve. A formal decision *process* is the endlessly repeating cycle of (1) finding a temporal problem to solve that appears to be in line with our normative end, (2) formulating various solutions to this problem, (3) evaluating these solutions, (4) choosing a solution, (5) implementing the chosen solution, and (6) learning from the experience.[7]

"In deciding well, we use neither timeless-positive frames nor temporal-normative frames. Knowing this, we may safely call temporal-positive frames *temporal frames* and timeless-normative frames *normative frames*. The juxtaposition of the two terms serves to remind us of this simplification of terms."

"[6] Consider the first basketball game in the 1986 film *Hoosiers*. Most residents of small town of Hickory believe that the temporal end of winning this game is the highest priority. However, the new basketball coach values the timeless end of playing basketball well more highly. Over the course of the film, we learn that this is because he values the end of deciding well even more highly."

"[7] From a timeless-normative view, what we deem to be a matter of efficiency changes with the size of the problem we choose, hence speaking of efficiency without specifying the 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."

Chapter 1, Temporal and Normative Models, title

Changed title to "*The Effectiveness of Effectiveness*."

Chapter 5, *Pursue Boundless, Not Temporal Order*, last paragraph

Changed "shortsighted" to "myopic" in the last sentence.

Chapter 8, introduction, first paragraph

Changed "better" to "ever better" in the last sentence.

Chapter 8, introduction, second paragraph

Changed "ever better" to "better" in the first sentence.

Chapter 8, Proving Boundless Reason, first paragraph

Changed "normative" to "our" in the first sentence.

Changed "normative" to "(timeless) normative" in the third sentence.

Changed "the normative" to "the" in the last sentence.

Chapter 8, Eudaemonia, third paragraph, second footnote, first two sentences

"Modern translations of 'eudaemonia' include happiness, well-being, and flourishing. All of these concern living well rather than governing our minds well. 'Eudaemonia' literally means having a good attending or indwelling spirit."

were changed to:

"In the Aristotelian tradition, modern translations of the classical Greek term 'eudaemonia' include happiness, well-being, and flourishing. In the Platonic tradition, 'eudaemonia' means having a good attending or indwelling spirit."

Changes on 31 August 2015

Chapter 1, *Frames Useful in Deciding Well,* first two paragraphs

"Addressing the problem of choosing frames well by deciding well calls for understanding what makes frames useful in deciding well. In deciding well, we predict what will happen in parts of the world in order to assign probabilities to uncertain events, which helps us solve given problems. To do so well, we recognize that our ignorance of the world is part of the world as we find it. We also distinguish what is likely to happen from what we would like to happen. In technical terms, we use *temporal positive* frames to predict well.

"In deciding well, we also explain the world as a whole. We do so in order to help us find the best problems to solve in pursuing what we seek. To explain well, we consider what we may learn, which calls for us to distinguish between what we seek and the constraints that prevent us from achieving what we seek. Among the most important of these constraints is time. Time prevents us from achieving all we would like to achieve, which includes learning all that we would like to learn. We choose frames unconstrained by time. In technical terms, we use *timeless normative* frames rather than *temporal normative* frames to explain well.[6]"

were changed to:

"Addressing the problem of choosing frames well by deciding well calls for understanding what makes frames useful in deciding well. In deciding well, we predict what will happen in parts of the world in order to assign probabilities to uncertain events, which helps us solve given problems. To do so well, we use frames based on the world as we currently find it (*temporal positive frames*) rather than as we currently choose to form it (*temporal normative frames*).

"In deciding well, we also explain the world *as we may choose to form it* in order to find the best problems to solve in pursuing what we believe to be good. To explain well, we consider all that we may learn. This calls for distinguishing between all that we may learn and the constrains on learning all that we may learn. Chief among these constraints is time. In explaining well, we use *timeless normative frames*. When we use *temporal normative frames* to find problems to solve, we do so in order to explain parts of the world. Which parts of the world we choose to explain is part of the problem of explaining well.[6]"

Chapter 1, *Frames Useful in Deciding Well,* third paragraph

Changed "temporal-" to "temporal " and "timeless-" to "timeless " in all (2 occurrences each).

Changed "timeless-" to "timeless " in the first sentence of the footnote.

Chapter 1, *Frames Useful in Deciding Well*, last paragraph

"In deciding well, we use neither timeless positive frames nor temporal normative frames. Knowing this, we may safely call temporal positive frames *temporal frames* and timeless normative frames *normative frames*. The juxtaposition of the two terms serves to remind us of this simplification of terms."

was deleted.

Chapter 1, *The Effectiveness of Effectiveness*, second paragraph

Changed "and normative" to "and timeless normative" in the first sentence (2 occurrences).

Changed "normative" to "timeless" in the last sentence.

Chapter 1, *The Effectiveness of Effectiveness*, fifth paragraph

Changed "normative model" to "model" in the second sentence.

Chapter 1, Boundless Models of Deciding Well, first paragraph

Changed "normative frames" to "timeless normative frames" in the third sentence.

Changed "normative ends" to "ends" in the last sentence (2 occurrences).

Chapter 1, Boundless Models of Deciding Well, second and third paragraphs

Changed "normative end" to "end" in all (3 occurrences).

Chapters 3 through 7

Changed "normative" to "timeless" in all (7 occurrences).

Chapter 7, *OODA Loop Analysis*, third paragraph

"Boyd later used his OODA loop model to address the timeless problem of living well. This called for defining what it is to win, for adding a learning function to his OODA loop, and for defining our relations with each other.
Boyd defined "winning" to be improving our fitness, as an organic whole, to shape and cope with an ever-changing environment; added a learning function to the

orientation step; and argued that we form groups for competing well on all scales up to and including nations."

was changed to:

"Boyd later used his OODA loop model to address the problem of living well. He did so by defining "winning" to be improving our fitness, as an organic whole, to shape and cope with an ever-changing environment. He also added a learning function to the orientation step of his decision loop."

Chapter 8, introduction, fifth paragraph

Changed "normative" to "timeless" in the all (2 occurrences).

Chapter 8, Proving Boundless Reason, first paragraph

Changed "(timeless) normative" to "timeless" in the third sentence.

Changed "normative ends" to "ends" in the first sentence of the last footnote.

Chapter 8, Proving Boundless Reason, second paragraph

Changed "normative" to "timeless" in the first sentence.

Appendix C, entire chapter

Changed "normative" to "timeless" in all (2 occurrences).

Appendix C, introduction, first paragraph

Changed "in multiple dimensions" to "*in multiple dimensions*" in the second to last sentence.

Changes on 2 September 2015

Preface, first paragraph

Changed "the spring of" to "early" in the first sentence.

Changed "theory" to "pioneering theory" in the first sentence.

Preface, second paragraph

"Fellow polymath and colleague Jacob Bronowski described what von Neumann sought as "a language in which the activities of different parts of the brain have somehow to be interlocked and made to match so that we devise a plan, a procedure, as a grand overall way of life—what in the humanities we would call a system of values" (Bronowski, J., *The Ascent of Man*, Boston: Little Brown, 1973, p. 433). So conceived, it is the business of science to inherit the moral imagination (p. 432). This rings true with Albert Einstein's claim that the whole of [modern] science is nothing more than a refinement of everyday thinking."

was deleted.

Preface, new second paragraph

Changed "a popular" to "pioneering" in the first sentence.

Changed "know" to "believe we know" in the seventh sentence.

Changed "know" to "believe we know" in the last sentence.

Preface, new second paragraph, third and fourth sentences

"To do so reasonably, we need to address Kurt Gödel's two-theorem proof that more than logic underlies mathematics: From the boundless view of this nascent science, the whole of science is the process of refining everyday thinking."

were changed to:

"This calls for defining the whole of science as the process of refining everyday thinking."

Introduction, eighth paragraph

Changed "universal process" to "science" in the first sentence.

Changed "first chapter" to "first chapter, "Deciding Well"" in the second sentence.

Chapter 1, *Frames Useful in Deciding Well*, second paragraph

Changed "may choose to" to "may" in the first sentence.

Changed "explain well" to "explain *well*" in the second sentence.

Changed "explain well" to "explain *well*" in the fourth sentence.

Changed "end" to "boundless end" in the last sentence of the footnote.

Chapter 4, introductory quote

Changed "science" to "[modern] science" in the first sentence.

Chapter 4, *Self-Similarity*, first paragraph

Changed ", e.g.," to ". For example, we do not" in the last sentence.

Chapter 7, *An Extraordinary Anomaly*, last paragraph, footnote, end

Added the sentence: "In 1958, the University of Chicago Press published this unfinished work under the title *The Computer and the Brain*."

Changes on 12 September 2015

Preface, second paragraph

Changed "know" to "believe we know" in the seventh sentence.

Changed "know" to "believe we know" in the last sentence.

Preface, fourth paragraph

Changed "know" to "believe we know" in the first sentence.

Introduction, fifth paragraph

Changed "know" to "believe we know" in the last sentence.

Chapter 1, *The Truth and Wisdom*, second to last paragraph

Changed "know" to "believe we know" in the second to last sentence.

Chapter 3, *A Boundless View of Quantum Mechanics*, second paragraph

Changed "what else they believe they know" to "everything else they currently believe they know" in the first sentence.

Chapter 4, *Self-Similarity*, first paragraph, footnote

Changed "know" to "believe we know" in the third to last sentence.

Chapter 4, *Recursivity*, last paragraph

Changed "*know*" to "*believe we know*" in the last sentence.

Chapter 8, Proving Boundless Reason, second paragraph

Changed "know" to "believe we know" in the second sentence.

Appendix A, introduction, third paragraph

Changed "know" to "believe we know" in the first sentence.

Changes on 16 September 2015

Chapter 1, *The Effectiveness of Effectiveness*, title

Changed title to "*The Wisdom of Effectiveness*."

Chapter 1, Boundless Models of Deciding Well, title

Changed title to "The Wisdom of Wisdom."

Appendix C, The Problem of Heraclitus, last paragraph

Changed "images or words" to "meaningful forms" in the second sentence.

Changed "tools" to "forms" in the third sentence.

Changes on 21 September 2015

Preface, first paragraph

Changed "we" to "that we" in the fourth sentence.

Chapter 1, *The Wisdom of Effectiveness*, last paragraph, footnote, first sentence

Inserted the following sentences: "Whether Ohno recognized it or not, his strategy for learning balances two infinities, the inexhaustibility of knowledge and the timelessness of producing well."

Chapter 8, Proving Boundless Reason, first paragraph, last footnote, last two sentences

"Assuming that self-conscious forms of artificial intelligence can exist and that such beings would likely evolve much faster than we humans do, we would be wise to program all self-improving forms of artificial intelligence to decide well using the boundless approach. We would also be wise to begin to cooperate with these potential people by building a culture that they would want to join."

were deleted.

Chapter 8, Eudaemonia, third paragraph, first footnote, end

Added the sentences: "Tacit knowledge of such a system may lead to artificial forms of intelligence that evolve much faster than human intelligence evolves. Humans would be wise to begin to cooperate with these potential people by building a culture that they would want to join."

Chapter 8, Eudaemonia, third paragraph, last footnote, second sentence

"So conceived, the boundless end of governing our minds well means having a perfectly good attending or indwelling spirit, a spirit ruled by boundless reason."

was changed to:

"Following in this tradition, the boundless end of governing our minds well means having a perfectly good spirit."

Appendix A, The Big Picture, second to last paragraph, last block quote

Changed "rational" to "logical" in the third sentence.

Appendix C, The Forgotten Role of Octagons, first paragraph

Changed "rationality" to "rationality (logical thinking)" in the first sentence.

Appendix C, A Boundless View of the Whole, third paragraph

Changed "knowing" to "logically relating" in the first sentence.

Changed "knowing the whole world as we may form it" to "explaining the world as a whole, which includes all potential states of the world" in the second sentence.

Appendix C, *Imagining the Chief Designer*, second paragraph

Changed "rational" to "logical" in the third sentence (2 occurrences).

Changes on 5 October 2015

Preface, first paragraph

Changed "timeless realm" to "realm" in the third sentence.

Introduction, third paragraph

Changed "(based on what ends we currently pursue)" to "given what we currently value" in the second to last sentence.

Chapter 4, *Self-Similarity*, first paragraph, footnote

Deleted the third sentence: "On the lowest level of abstraction, there exist no lower levels of abstraction from which to explain."

Changed "search lower levels" to "search" and "wisely" to "*wisely*" (printed version only) in the new fourth sentence.

Chapter 4, *Recursivity*, first paragraph, footnote

Changed "reality" to "the world" in the last sentence.

Chapter 7, *An Extraordinary Anomaly*, second paragraph, footnote

Changed "He" to "Von Neumann" in the second sentence.

Changed "von Neumann" to "he" and "models that we can compute" to "computable models" in the third sentence.

Changed "model that we can compute" to "computable model" in the seventh sentence.

Chapter 8, introduction, first paragraph

Changed "beings bound to live well in the flow of time (living beings)" to "living beings (beings bound to live well in the flow of time)" in the second sentence.

Chapter 8, introduction, second paragraph

"In creating better means of replacing scarce non-knowledge resources with knowledge resources in living well, some living beings (people) learn to create abstract symbolic tools for planning and learning from their actions. Collections of such tools, which we commonly call languages, greatly speed the process of replacing non-knowledge resources with knowledge resources in living well."

was changed to:

"In creating better means of replacing scarce non-knowledge resources with knowledge resources in living well, some living beings create language (systems of abstract symbolic tools for planning and learning from actions). Language greatly speeds the process of replacing non-knowledge resources with knowledge resources in living well."

Chapter 8, introduction, third paragraph

Changed "people learn to develop" to "living beings who use language create" in the first sentence.

Chapter 8, introduction, fourth paragraph

Changed "people" to "living beings who use language (people)" in the first sentence.

Chapter 8, introduction, fifth paragraph

Changed "explain" to "discover" in the last sentence.

Chapter 8, introduction, last paragraph, footnote

Changed "that Edward Bellamy's" to "that" in the second sentence.

Changed "Edward" to "author Edward" in the third sentence.

Changed "Edward's" to "Bellamy's" in the fourth sentence.

Chapter 8, Proving Boundless Reason, second paragraph, last sentence

"We do so by acting as if it is best."

was deleted.

Appendix A, introduction, fourth from the last paragraph, footnote

Changed "boundlessly reasonable relation between mathematics and science" to "foundations of mathematics" in the last sentence.

Appendix A, introduction, third from the last paragraph, footnote

Changed "boundless relation between mathematics and science" to "foundations of mathematics" in the last sentence.

Appendix A, Ideal Forms, first paragraph, footnote

"[5] For example, in the introductory section of this appendix we weeded out the results-oriented means of describing objects (R8, I7, R7, I6, R6, I5, R5, I4, R4, I3, R3) because it was less beautiful than the process-oriented means (N8, Y8, N7, Y7, N6, Y6, N5, Y5, N4, Y4, N3)."

was changed to:

"[5] For example, in the introductory section of this appendix we weeded out the results-oriented means of describing objects (R8, I7, R7, I6, R6 ...) because it was less useful in helping us find problems to solve, hence less beautiful, than the process-oriented means (N8, Y8, N7, Y7, N6 ...)."

Appendix C, A Boundless View of the Whole, third paragraph

Changed "potential" to "possible future" in the second sentence.

Appendix C, A Boundless View of the Whole, fourth paragraph

Changed "see" to "can find" in the first sentence.

Changed "also see them" to "also can find them personified" in the second sentence.

Appendix C, *The Role of Julius II*, first paragraph

Changed "cursive gold form" to "gold cord" in the first sentence.

Changed "the form" to "this decoration" in the second sentence.

Appendix C, *The Role of Julius II*, first paragraph, last three sentences

"The heraldic colors of this decoration match those of his family coat of arms (a gold oak tree on an azure field). If we look closely at this decoration, we see that the cursive gold form is a knot worthy of Gordias. This knot symbolizes the problem of managing people who promote religious forms and those who promote religious experience."

were changed to:

"The colors of this decoration match those of Julius II's family coat of arms, which is a gold oak tree on an azure field. The elaborately knotted cord surrounding his name symbolizes the problem of managing conflicts between clerics who promote current religious forms (metaphorically the two church doctors to the immediate left) and those who promote religious experience (metaphorically the two church doctors to the immediate right)."

Appendix C, *Imagining the Designer*, fifth paragraph

Changed "Gordian" to "altar" in the last sentence.

Appendix C, The Problem of Heraclitus, first paragraph

Changed "template drawing (cartoon)" back to "cartoon (template drawing)" in the second sentence.

Changes on 17 October 2015

Acknowledgments, last paragraph

Changed ", on apparently solid bedrock" to "as we find it" in the second sentence.

Introduction, second to last paragraph

Changed "believe" to "live" in the first sentence.

Introduction, last paragraph, second through fourth sentences

"To make it a bit easier, I put material not necessary to the main argument in footnotes. To help readers whose native language is not English, I used commas

liberally. I italicized the first instance of terms and phrases with unfamiliar meanings."

were changed to:

"To make it a bit easier, I italicized the first instance of terms and phrases with unfamiliar meanings."

Chapter 7, *An Extraordinary Anomaly*, last paragraph, footnote

Changed "the University of Chicago Press" to "Yale University Press" in the last sentence.

Chapter 8, introduction, second paragraph, end

Added the sentence: "The capacity to use language is what distinguishes people from other living beings."

Chapter 8, introduction, third paragraph

Changed "living beings who use language (people)" to "people" in the first sentence.

Appendix C, introduction, first paragraph

Italicized "efficiency functioning on multiple levels and" in the third sentence.

Changes on 28 October 2015

Preface, first paragraph

Changed "lectures" to "lecture series" in the first sentence.

Added the following sentence between the fifth and sixth sentences: "Former colleague and fellow polymath Jacob Bronowski described what he sought as "a procedure, as a grand overall way of life—what in the humanities we would call a system of values" (Bronowski, J., *The Ascent of Man*, Boston, Little Brown, 1973, p. 433)."

Changed "he" to "von Neumann" in the new seventh sentence.

Preface, second paragraph

Changed "comes from removing ever more waste" to "emerges from removing waste" in the fourth sentence.

Introduction, third paragraph

Changed "deciding well given what" to "pursuing the ideals" in the second to last sentence.

Introduction, third from the last paragraph

Changed "end" to "end this chapter" in the last sentence.

Introduction, second from the last paragraph

Changed "shortcoming" to "shortcoming, which is my failure to describe constraints in governing our minds well" in the last sentence.

Chapter 1, introduction, last paragraph, first footnote (printed version)

Italicized the book title in the reference.

Chapter 5, *A Sovereign Story for Deciding Well*, last paragraph, footnote

Changed "John Maynard," to "J. M.," in the last sentence.

Chapter 7, *An Extraordinary Anomaly*, second paragraph, footnote, last six sentences

"The better any group of deciders decide, the lower the amount of waste in their solutions to temporal problems. At the limit of this process of removing waste, all deciders act as if they are a single decider. In theory, we can reduce any temporal problem to a decision-tree model, which is a type of computable model. Bronowski went on to claim that near the end of von Neumann's life, he had started to work on a means of expanding the scope of his theory of games to provide us with "a plan, a procedure, as a grand overall way of life—what in the humanities we would call a system of values." Regrettably, von Neumann died before completing this work. In 1958, Yale University Press published this unfinished work under the title *The Computer and the Brain*."

were changed to:

"At the limit of this process of removing waste, all deciders act as if they are a single decider."

Chapter 7, *Boyd's Grand Strategy*, last paragraph, footnote

Changed "*Destruction and Creation*," to ""Destruction and Creation,"" in the last sentence.

Chapter 7, *The Grandest Possible Strategy*, first paragraph, footnote, last four sentences

"From the boundless view, this sense of right comes not from our current interpretations of texts, but rather from the endless pursuit of complete knowledge of the laws of nature. Some may think of this process as refining our imperfect understanding of Shari'a. However we think of it, we recognize that this process is endless: The wise man says, "I am looking for the truth," and the fool, "I have found the truth.""

were changed to:

"From the boundless view, this sense of right emerges from the endless pursuit of complete knowledge of the laws of nature."

Chapter 8, introduction, last paragraph, footnote

Changed "bounded synthesis of modern dialectics and pragmatism" to "bounded synthesis" in the second sentence.

Changed "Bellamy's" to "Edward Bellamy's" in the fifth sentence.

Chapter 8, Eudaemonia, last paragraph

"A strategy for deciding well that does not describe governing our minds well is dangerously incomplete. Instead of such a description, I offer three maxims from the Delphic temple of Apollo: "know thyself," "nothing overmuch," and "[make] a pledge, and thereupon perdition."[7] From the boundless view, knowing the science of science is for everyone; knowing the whole of science is for no one. We put our faith in freedom, cooperation, and self-interest enlightened by boundless reason, not in people who pretend to be philosopher kings."

"[7] Plato, *Charmides*, trans. W. R. M. Lamb, (164d–165a), available online at <http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.01.017

6%3Atext%3DCharm.%3Asection%3D164d> (22 January 2015). People who find the third maxim confusing may find understanding in the pledges that led to the sad ends of Georg Cantor and Kurt Gödel. Both found unsolvable problems that appeared to be solvable (formally proving the continuum hypothesis for both Cantor and Gödel, and formally proving the existence of mathematical intuition for Gödel). Once they had pledged to solve these tantalizing problems, daemons they believed to be truly good would not let them give up."

was changed to:

"A downside of opening ever more of our minds to consciousness is opening consciousness to ever more of our daemons. The line between genius and madness is often a fine one. A strategy for deciding well that does not describe the constraints on governing our minds well is dangerously incomplete. Instead of describing these constraints, I offer three maxims from the Delphic temple of Apollo: "know thyself," "nothing overmuch," and "[make] a pledge, and thereupon perdition."[7]

"People who find the third maxim confusing may find understanding in the sad ends of Georg Cantor and Kurt Gödel. Both men found open-ended problems that appeared to be logically solvable. Once they had pledged to solve these tantalizing problems, daemons they believed to be truly good would not let them give up. Cantor died in an asylum. Gödel starved himself to death.

"Pursuing boundless ends is tantalizing. From the boundless view, knowing the science of science is for everyone; knowing the whole of science is for no one. We put our faith in freedom, cooperation, and self-interest enlightened by boundless reason, not in people who pretend to be philosopher kings."

"[7] Plato, *Charmides*, trans. W. R. M. Lamb, (164d–165a), available online at <http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.01.0176%3Atext%3DCharm.%3Asection%3D164d> (22 January 2015)."

Appendix A, Ideal Forms, last paragraph, footnote

Changed "ever more waste" to "waste" in the last sentence.

Changes on 24 November 2015

Introduction, second to last paragraph

Changed “constraints in” to “the process of” in the last sentence.

Chapter 8, Proving Boundless Reason, first paragraph, second footnote

Changed “ends” to “a timeless end” in the second sentence.

Changed “the Truth” to “this end” in the last sentence (first occurrence).

Changed “the Truth” to “it” in the last sentence (second occurrence).

Appendix A, introduction, fourth paragraph

Changed “this point and connecting” to “the rightmost vertex and its two” in the second sentence.

Appendix A, introduction, first two footnotes (printed version only)

Changed “foundations of mathematics” to “the foundations of mathematics” in the last sentence (2 occurrences).

Appendix C, The Problem of Heraclitus, second paragraph, last two sentences

“From the view of the room as a whole, to ask this question is to answer it: Deciding well calls for more than pure rationality; it calls for the complex reason of Plato and Aristotle.”

were changed to:

“From the view of the room as a whole, the problem is obvious: Deciding well calls for the complex reason of Plato and Aristotle, not pure rationality.”

Appendix The Problem of Heraclitus, fourth paragraph

Changed “Further” to “Further reinforcing this claim” in the first sentence.

Changes on 30 November 2015

These changes address the distinction between what we currently know and what we currently know *consciously*. Changing “currently know” to “currently believe we know” was an afterthought applied universally. This was a mistake. It ought not to have been applied to the process of judging what does or does not ring true with all

that we currently know about deciding well. This process ought to include an intangible (tacit) sense of beauty.

Preface, second paragraph

Changed "believe we know" to "know" in the last two sentences (2 occurrences).

Introduction, sixth paragraph

Changed "believe we know" to "know" in the last sentence.

Introduction, seventh paragraph

Changed "believe we know" to "know" in the first sentence.

Chapter 1, *The Truth and Wisdom*, second to last paragraph

Changed "believe we know" to "know" in the second to last sentence.

Chapter 2 Wealth, first paragraph

Changed "; it" to ". It" in all (2 occurrences).

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, fourth paragraph, footnote

Changed "believe we know" to "know" in the last sentence.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, second to last paragraph

Changed "believe we know" to "know" in the last sentence.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, last paragraph

Changed "believe we know" to "currently know" in the first sentence.

Chapter 4, introduction, second paragraph

Changed "believe we know" to "know" in the first sentence.

Chapter 4, *Self-Similarity*, first paragraph, footnote

Changed "believe we know" to "know" in the second to last sentence.

Chapter 4, *Recursivity*, last paragraph

Changed "believe we know" to "know" in the last sentence.

Chapter 8, Proving Boundless Reason, second paragraph

Changed "believe we know" to "know" in the second sentence.

Appendix A, introduction, third paragraph

Changed "believe we know" to "know" in the first sentence.

Appendix C, The Forgotten Role of Octagons, first paragraph

"Most modern art historians recognize the role of circles, which represent the divine, and squares, which represent rationality (logical thinking), in unifying the decoration of the Stanza della Segnatura. As important is the role of octagons, which represent the unity of the transcendental and timeless ends of four facets of Wisdom."

was changed to:

"Most modern art historians recognize the roles of squares and circles in unifying the decoration of the Stanza della Segnatura. As important is the role of octagons. Here, squares symbolize rationality; circles the transcendent; and octagons the process of pursuing the transcendent, of squaring the circle."

Changes on 12 December 2015

Chapter 1, Choosing Frames Well, last paragraph, footnote

Changed "From the boundless view of this work, we" to "We" in the first sentence.

Changed "We" to "From the boundless view of this work, we" in the second to last sentence.

Appendix C, A Boundless View of the Whole, second paragraph, footnote

"[6] From its position relative to the doors, which are on either side of the back wall, this was likely the main work area in the room. Given that the crossed-keys symbol at the center of this area matches the symbol at the center of the ceiling, this area appears to depict a "temporally flattened" model of the strategy for pursuing Holy Wisdom. If so, the curvilinearity of the borders that define the four facets/factors represents the pretense of rationality found in all formal models that pretend to depict the path forward."

was deleted.

Appendix C, A Boundless View of the Whole, third paragraph

Inserted the following paragraph:

"From its position relative to the doors, the large square with the crossed keys at its center was likely the papal work area. This square appears to depict a flattened version of the strategy depicted on the ceiling and walls. If so, the curvilinearity of its inner borders represents the pretense of rationality found in all temporal models that pretend to depict the best path forward. This rings true with the claim that more than logic underlies the science of forms, hence the whole of science."

Changes on 28 December 2015

All external web links

Confirmed all external web links and updated the reference dates.

Preface, first paragraph

Changed "Silliman lecture series" to "Silliman Memorial lectures" in the first sentence.

Preface, second paragraph, third and fourth sentences

"This calls for defining the whole of science as the process of refining everyday thinking. Beneath the whole of science is the science of forms (mathematics)."

were changed to:

"Conceived in this self-referential manner, the science of deciding well is the whole of science. Beneath the whole of science is mathematics."

Introduction, third paragraph, block quote

Changed "temporally bounded" to "(temporal)" in the last sentence.

Chapter 1, Choosing Frames Well, last paragraph, end

Added the sentence:

"This calls for understanding what makes frames useful in deciding well."

Chapter 1, *Frames Useful in Deciding Well*, first two paragraphs

"Addressing the problem of choosing frames well by deciding well calls for understanding what makes frames useful in deciding well. In deciding well, we predict what will happen in parts of the world in order to assign probabilities to uncertain events, which helps us solve given problems. To do so well, we use frames based on the world as we currently find it (*temporal positive frames*) rather than as we currently choose to form it (*temporal normative frames*).

"In deciding well, we also explain the world as we may form it in order to find the best problems to solve in pursuing what we believe to be good. To explain *well*, we consider all that we may learn. This calls for distinguishing between all that we may learn and the constraints on learning all that we may learn. Chief among these constraints is time. In explaining *well*, we choose *timeless normative frames*. When we use *temporal normative frames* to find problems to solve, we do so in order to explain parts of the world. Which parts of the world we choose to explain is part of the problem of explaining well.[6]"

"[6] Consider the first basketball game in the 1986 film *Hoosiers*. Most residents of small town of Hickory believe that the temporal end of winning this game is the highest priority. However, the new basketball coach values the timeless end of playing basketball well more highly. Over the course of the film, we learn that this is because he values the boundless end of deciding well even more highly."

were changed to:

"In deciding well, we predict what will happen in parts of the world. We use this knowledge to assign probabilities to future events, which helps us solve given problems. To predict well, we use frames based on the world *as we currently find it*. In philosophical terms, these frames are *positive*.

"In deciding well, we also explain the world. We use this knowledge to find problems to solve. To explain well, we use frames based on the world *owe it to ourselves (ought) to form it*. In philosophical terms, these frames are *normative*.

"Normative frames may be either *temporal* or *timeless*. Temporal normative frames have ends (goals) that are bounded in time. Timeless normative frames have ends that are not bounded in time. When we use temporal frames to explain the world, we do so in order to explain parts of the world. Choosing which parts of the world to explain is part of the problem of deciding well.[6]"

"[6] Consider the first basketball game in the 1986 film *Hoosiers*. Most residents of small town of Hickory believe that the temporal end of winning this game is the highest priority. However, the new basketball coach values the timeless end of playing basketball well more highly. Over the course of the film, we learn that his mission is coaching others to live well. In terms of this work, he values the boundless end of deciding well more highly than the timeless end of playing basketball well."

Chapter 1, *Frames Useful in Deciding Well*, last paragraph, first four sentences

"Temporal normative frames differ from timeless normative frames in their concepts of *excellence in means*. From a temporal normative frame, excellence in means is *efficiency*, excellence in solving given problems. A formal decision *event* consists of formulating solutions to the given problem, evaluating these solutions, choosing a solution, and implementing the chosen solution. In contrast, from a timeless normative frame, excellence in means is not only efficiency but also *effectiveness*, excellence in choosing problems to solve."

were changed to:

"Temporal and timeless normative frames differ markedly in their concepts of excellence in means. From a temporal view, excellence in means is *efficiency*, excellence in solving given problems. A formal decision *event* consists of formulating solutions to the given problem, evaluating these solutions, choosing a solution, and implementing the chosen solution. In contrast, from a timeless view, excellence in means is not only efficiency but also *effectiveness*, excellence in choosing problems to solve."

Chapter 1, *The Wisdom of Effectiveness*, second paragraph, first sentence

"In keeping with our distinction between temporal and timeless normative frames, we may distinguish between temporal and timeless normative models."

was changed to:

"In deciding well, we distinguish between temporal and timeless normative models."

Chapter 1, *Seeing Through Apparent Miracles*, second to last paragraph

Changed ““efficiency frontiers,”” to ““efficiency” frontiers,” in the third sentence.

Chapter 2, introduction, last paragraph

Changed “*may form it*” to “*owe it to ourselves (ought) to form it*” in the second sentence.

Chapter 3, *A Boundless Approach to Quantum Mechanics*, sixth paragraph, footnote, second through last sentences

“Consider how the simplifying assumptions of relativity theory tend to blind us to the possibility of cooperating long before we are able to communicate. We can cooperate with people without communicating with them. We do so by deciding well using the boundless approach.”

were changed to:

“The boundless approach to deciding well allows us to cooperate without communicating. We are less likely to be blind to this opportunity using the concept of time found in quantum mechanics than that found in relativity theory. This in no way diminishes the usefulness of relativity theory in predicting what it predicts.”

Chapter 3, The Elephant in the Room, first paragraph

Changed “living beings” to “*living beings* (beings bound to live well in the flow of time)” and “living beings” to “*living beings* (beings bound to live well in the flow of time)” in the first sentence.

Chapter 4, *Academic Fields*, last paragraph

Changed “self-similar, self-referential, multiple-frame” to “complex” in the first sentence.

Chapter 4, Refining Everyday Thinking, first paragraph

Changed “the process of refining everyday thinking” to “this process” in the first sentence.

Chapter 4, *Refining Finding Problems to Solve*, second paragraph, second footnote

Changed "will tend" to "tends" in the last sentence.

Chapter 8, introduction, first paragraph

Changed "beings bound to live well in the flow of time (living beings)" to "living beings" in the first sentence.

Chapter 8, introduction, second paragraph

Changed "language (systems of abstract symbolic tools for planning and learning from actions)" to "*language*, systems of abstract symbolic tools for planning and learning from actions" in the first sentence.

Chapter 8, Eudaimonia, fifth paragraph

Changed "appeared to be logically solvable" to "they believed they could solve" in the first sentence.

Chapter 8, Eudaimonia, last paragraph

Changed ", not" to "; not in people who pretend to knowledge that surpasses what any one person can know, not" in the last sentence.

Changes on 23 January 2016

The following changes were the result of comments made by J. Miller.

Preface, second paragraph, third and fourth sentences

"Conceived in this self-referential manner, the science of deciding well is the whole of science. Beneath the whole of science is mathematics."

were changed to:

"Beneath the science of deciding well is mathematics."

Acknowledgments, last paragraph

Changed "we find" to "they found" in the second sentence.

Introduction, sixth paragraph, last sentence

"We can use this model of the structure of deciding well to build complex models of deciding well that help us find "beautiful" problems to solve, problems that "ring true" with all that we currently know about deciding well."

were changed to:

"We can use these relations to build faceted models of deciding well in which each facet contains a description of the pursuit of a boundless factor of deciding well. We can then use these models to help us find "beautiful" problems to solve, problems that "ring true" with all that we currently know about deciding well."

Introduction, seventh paragraph

Changed "this approach" to "this complex approach" in the second sentence.

Changed "factors of deciding well" to "factors of deciding well, each of which forms a facet in the complex model of deciding well put forth in this work" in the second sentence.

Introduction, second to last paragraph

Changed "the process of governing" to "constraints on governing" in the last sentence.

Introduction, last paragraph, first two sentences

"Once we have learned to view the world in one way, it can be hard for us to view it in another. To make it a bit easier, I italicized the first instance of terms and phrases with unfamiliar meanings."

were changed to:

"The concept of reason I put forth in this book is a natural synthesis of the dialectics of Plato and the logic of Aristotle. Using it well calls for changing the meaning of some familiar terms and phrases. To make this difficult task a bit easier, I italicized the first instance of terms and phrases with unfamiliar meanings."

Introduction, last Kindle paragraph

Deleted the Kindle footnote instruction.

Chapter 1, introduction, fourth paragraph, first footnote

"[1] When we combine knowledge into a network, this local "lock-in" effect can withstand superior knowledge not yet in use. See Arthur, W. Brian, "Positive Feedbacks in the Economy," Scientific American, Feb. 1990, pp. 92–9, reprinted in *Increasing Returns and Path Dependence in the Economy* (Ann Arbor: University of Michigan Press, 1994)."

was promoted to the body and changed to:

"When we combine knowledge into a network, this local "lock-in" effect can withstand superior knowledge not yet in use.[2] These networks include our systems of beliefs."

"[1] Arthur, W. Brian, "Positive Feedbacks in the Economy," Scientific American, Feb. 1990, pp. 92–9, reprinted in *Increasing Returns and Path Dependence in the Economy* (Ann Arbor: University of Michigan Press, 1994)."

Chapter 1, Choosing Frames Well, first paragraph, footnote

"[3] This definition does not rule out artificial or extraterrestrial beings."

was deleted.

Chapter 1, Choosing Frames Well, last paragraph, footnote

"[4] We owe it to ourselves (ought) to measure what we currently believe we know about deciding well against what we currently believe we need to know in order to decide perfectly. Consider Georg Cantor's continuum hypothesis. In 1878, Cantor hypothesized that there is no set of numbers having cardinality strictly between that of integers and real numbers. Trying to prove or disprove this hypothesis drove him insane. In 1963, Paul Cohen showed that there exist approaches to mathematics in which the continuum hypothesis is true and other approaches in which it is false. From the boundless view of this work, we ought to ask ourselves whether these approaches are ideal forms. For more about this, see Appendix A (The Science of Forms)."

was deleted.

Chapter 1, Frames Useful in Deciding Well, third paragraph, last two sentences

"When we use temporal frames to explain the world, we do so in order to explain parts of the world. Choosing which parts of the world to explain is part of the problem of deciding well.[6]"

"[5] Consider the first basketball game in the 1986 film *Hoosiers*. Most residents of small town of Hickory believe that the temporal end of winning this game is the highest priority. However, the new basketball coach values the timeless end of playing basketball well more highly. Over the course of the film, we learn that his mission is coaching others to live well. In terms of this work, he values the boundless end of deciding well more highly than the timeless end of playing basketball well."

were changed to:

"Consider the first basketball game in the 1986 film *Hoosiers*. Most residents of small town of Hickory believe that the temporal end of winning this game is the highest priority. However, the new basketball coach values the timeless end of playing basketball well more highly."

Chapter 1, *Frames Useful in Deciding Well*, last paragraph, footnote

"[6] From a timeless normative view, what we deem to be a matter of efficiency changes with the size of the problem we choose, hence speaking of efficiency without specifying the 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."

was promoted to a paragraph.

Chapter 1, *The Wisdom of Effectiveness*, first paragraph

"We refine frames by removing waste from them."

was changed to:

"When we use temporal frames to explain the world, we do so in order to explain parts of the world. Choosing which parts of the world to explain is part of the problem of deciding well. From a modern view of science, choosing which parts of the world to explain is the business of the science of science policy. From the view of the science of deciding well, it is the business of the science of deciding well.

"We may think of the whole of science as the process of refining everyday thinking. We refine frames by removing waste from them."

Chapter 1, The Wisdom of Wisdom, first paragraph

Inserted the following two paragraphs:

"In the previous section, we saw how the coach in *Hoosiers* valued the timeless end of playing basketball well more than the temporal end of winning the first basketball game. Over the course of the film, we gradually learn that this is because he values helping others decide well even more highly. We can see a scientific analogue to his approach to ethics in the foundations of *mathematics*, the science of forms (patterns).

"Nearly a century and a half ago, mathematician Georg Cantor proved that some infinitely large sets of numbers are larger than others. In 1878, he hypothesized that there is no infinitely large set of numbers having a number of elements strictly between the number of integers and the number of real numbers. Trying to prove or disprove this hypothesis drove him insane. In 1963, Paul Cohen showed that there exist approaches to mathematics in which this hypothesis is true and other approaches in which it is false. Which of these approaches ought we to choose? From the view of the science of deciding well, we ought to choose the approaches that best help us decide well.[3]"

"[3] For more about this natural approach to the foundations of mathematics, see Appendix A (The Science of Forms)."

Chapter 1, The Wisdom of Wisdom, new fourth paragraph

Changed "end of deciding well" to "timeless end of deciding well" in the last sentence.

Chapter 1, The Wisdom of Wisdom, new fifth paragraph, footnote

"[10] From imagining how the ideal forms of these boundless factors relate to each other, we can imagine how the boundless concept of reasonableness relates to the mathematical concept of computability. For more about this, read the chapter on contemplating well."

was deleted.

Chapter 1, The Wisdom of Wisdom, last paragraph, footnote

"[11] Daniel Dennett distinguished between normative belief systems based on science, which he called *cranes*, and those based on miracles, which he called *skyhooks* (*Darwin's Dangerous Idea*, New York: Simon and Schuster, 1996). The boundless approach to deciding well is an infinitely large crane, not a skyhook. Using this approach, we base our values on what we need to know in

order to pursue Wisdom well. This approach does not call for us to abandon the study of texts. It only calls for us to interpret texts in the light of pursuing Wisdom."

was promoted to a paragraph and changed to:

"In his book *Darwin's Dangerous Idea*, philosopher Daniel Dennett distinguished between normative belief systems based on science, which he called *cranes*, and those based on miracles, which he called *skyhooks*.[7] The boundless approach to deciding well is an infinitely large crane, not a skyhook. Taking the boundless approach, we base our values on what we need to know in order to pursue Wisdom well. This approach does not call for us to abandon the study of texts. It only calls for us to interpret texts in the light of pursuing Wisdom."

"[7] Dennett, D., *Darwin's Dangerous Idea: Evolution and the Meanings of Life* (New York: Simon and Schuster, 1996)."

Chapter 1, *The Truth and Wisdom*, sixth paragraph

Changed "which in turn calls for us to choose a frame, which in turn calls for us to choose a frame," to "which in turn calls for us to choose a frame," in the fourth sentence.

Chapter 1, *The Truth and Wisdom*, second to last paragraph

Changed "multiple-framed" to "faceted" in the all (2 occurrences).

Chapter 1, *The Truth and Wisdom*, fourth paragraph, footnote

"[13] Allowing experience to change our system of concepts blurs the distinction between truths grounded in meanings and truths grounded in fact. Philosophers will recognize this as the analytic versus synthetic truth problem, which is the first of W. V. O. Quine's two dogmas of empiricism. See Quine, W. V. O, "Two Dogmas of Empiricism," *The Philosophical Review* Vol. 60, No. 1 (Jan., 1951), pp. 20–43. Reprinted in Quine, W. V. O., *From a Logical Point of View* (Cambridge, MA: Harvard University Press, 1953; second, revised edition, 1961)."

was promoted to text and changed to:

"*Allowing experience to change our system of concepts blurs the distinction between truths grounded in meanings and truths grounded in fact.* Philosophers

will recognize this as the analytic versus synthetic truth problem, which is the first of W. V. O. Quine's two dogmas of empiricism.[8]"

"[8]Quine, W. V. O, "Two Dogmas of Empiricism," *The Philosophical Review* Vol. 60, No. 1 (Jan., 1951), pp. 20–43. Reprinted in Quine, W. V. O., *From a Logical Point of View* (Cambridge, MA: Harvard University Press, 1953; second, revised edition, 1961)."

Chapter 1, *Steps for Building Boundless Models*, first paragraph

Changed "four" to "five" in the first sentence.

Changed "resulting model" to "facets" in the fifth sentence.

Inserted the following before the last sentence: "The fourth is adding this frame to a faceted model of deciding well."

Chapter 1, *Steps for Building Boundless Models*, second paragraph

Changed "four" to "five" in the first sentence.

Chapter 1, *Steps for Building Boundless Models*, fourth paragraph

Changed "tightly these pursuits intertwine" to "closely these pursuits relate to each other" in the fourth sentence.

Chapter 1, *Steps for Building Boundless Models*, last paragraph

Changed "multiple-frame model" to "faceted model" in the first sentence.

Chapter 1, *Ever More Complete Boundless Models*, last paragraph

Changed "multiple-frame model" to "faceted model of deciding well" in the first sentence.

Changed "science of science" to "science of deciding well" in the last sentence of the footnote.

Chapter 2, introduction, last paragraph, second sentence

Added the sentence: "Boundless concepts help us to think clearly about what we ought to learn."

Chapter 3, *Overcoming Constraints in Deciding Well*, first paragraph, footnote

"[2] From the view of modern mathematics, π is *computable*, which is to say that we can program a Turing machine, an abstract computing machine that does nothing more than follow rules, to compute π to any number of decimal places. Recursive programs for computing the value of π halt when they reach a given level of effort or accuracy, not the value of π. From the boundless view, π is computable in theory, but not in practice. In theory, the claim that π is computable arises from reducing the actual problem of computing π to an abstract problem of computing π that ignores constraints. In practice, we need to consider constraints on computing π. Ignoring these constraints tends to blind us to the practical problems of computing π."

was deleted.

Chapter 3, *Overcoming Constraints in Deciding Well*, last paragraph, footnote

"[4] We can enlarge the problem of computing the value of π by including the problem of choosing the best means of computing the value of π. In other words, we can change the problem from computing π to computing π *well*. From a modern view, this change takes us from the realm of mathematics to some higher, more arcane realm, e.g., metamathematics. From the boundless view, it takes us from the realm of mathematics to the realm of the science of deciding well. We best address the problem of computing π well by pursuing the boundless end of deciding well. *Deciding well is the boundless means of squaring the circle.*"

was promoted to the text and changed to:

"From the view of modern mathematics, π is *computable*, which is to say that we can program a Turing machine, an abstract computing machine that does nothing more than follow rules, to compute π to any number of decimal places. Recursive programs for computing the value of π halt when they reach a given level of effort or accuracy, not the value of π. When we enlarge the problem of computing the value of π by including the problem of choosing the best means of computing the value of π, which is to say when we enlarge the problem of computing the value of π to computing the value of π *well*, we leave the realm of mathematics and enter some higher, more arcane realm.

"From the boundless view, π is computable in theory, but not in practice. In theory, the claim that π is computable arises from reducing the actual problem of computing π to an abstract problem of computing π that ignores constraints. In practice, we need to consider constraints on computing π. Ignoring these

constraints tends to blind us to the practical problems involved in choosing the best means of computing π. When we enlarge the problem of computing π to the problem of computing π *well*, we leave the realm of mathematics and enter the realm of the science of deciding well. We best address the problem of computing π well by pursuing the boundless end of deciding well. *Deciding well is the boundless means of squaring the circle.*"

Chapter 3, *Public Entropy*, first paragraph, footnote

"[4] The transcendental end of zero public entropy is the dynamic analogue of (and alternative to) Pareto optimality, the state of the world in which it is impossible to make any person better off without making at least one other person worse off."

was promoted to the text and changed to:

"This transcendental end is the dynamic analogue of (and alternative to) Pareto optimality, the state of the world in which it is impossible to make any person better off without making at least one other person worse off."

Chapter 3, *Public Entropy*, third paragraph, footnote

"[6] In considering waste in managing the knowledge we use in deciding well, we must consider waste not only in storing and transmitting information but also in communicating and using it. In general, we do not communicate well. We do not tell all we need to tell to help others decide well. In turn, we do not hear all that we need to hear from others to decide well. Without adequate instructions for how to use partial descriptions of the world well, we tend to confuse these descriptions with reality. Too many of us think of atoms as little solar systems, of gravity as a centripetal force, and of wealth as consumer goods and the resources to obtain consumer goods. Further complicating this issue is the knowledge intensity of the boundless approach to finding problems to solve. Until people have achieved a critical mass in knowledge about pursuing the boundless factors of deciding well, they may be better off using bounded models. For more about this exoteric/esoteric problem, see Appendix C (Renaissance Art)."

was promoted to the text at the end of the paragraph and changed to:

"In considering waste in deciding well, we must consider waste not only in storing and transmitting information but also in communicating and using it. In general, we do not communicate well. We do not tell all we need to tell to help others decide well. In turn, we do not hear all that we need to hear from others to decide

well. Without adequate instructions for how to use partial descriptions of the world well, we tend to confuse these descriptions with reality."

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, fourth paragraph

"A defining feature of the hidden variables class is the belief that we will eventually be able to predict the behavior of individual quantum-level objects with certainty, which implies that the hidden variables that explain what we currently perceive as entanglement are local. Following this line of thinking, we do not have free will.[8]"

"[8] This interpretation of quantum mechanics contradicts Bell's theorem, which states that local variables cannot explain everything that quantum mechanics predicts. Decades of experiments have failed to disprove this theorem. From the boundless view, we ought to view the issue of whether free will exists as an experiment: If we choose to believe that free will exists, we ought to seek to disprove that free will exists, which calls for us to act as if free will exists. On the other hand, if we choose to believe that free will does not exist, we ought to seek to disprove that free will does not exist, which calls for us to act as if free will does not exist. The former is the more beautiful problem to solve. It rings truer with all that we currently know about deciding well."

was changed to:

"A defining feature of the hidden variables class is the belief that we will eventually be able to predict the behavior of individual quantum-level objects with certainty, which implies that the hidden variables that explain what we currently perceive as entanglement are local.[6] Following this line of thinking, we do not have free will.[7]"

"[6] This interpretation of quantum mechanics contradicts Bell's theorem, which states that local variables cannot explain everything that quantum mechanics predicts. Decades of experiments have failed to disprove this theorem."

"[7] From the boundless view, we ought to view the issue of whether free will exists as an experiment. If we choose to believe that free will exists, we ought to seek to disprove that free will exists, which calls for us to act as if free will exists. On the other hand, if we choose to believe that free will does not exist, we ought to seek to disprove that free will does not exist, which calls for us to act as if free will does not exist. The former is the more beautiful problem to solve. It rings truer with all that we currently know about deciding well."

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, sixth paragraph, footnote

"[8] Explanations are more than predictions written backwards. Consider how the simplifying assumptions of relativity theory tend to blind us to the possibility of cooperating without communicating. We can cooperate with people without communicating with them. We do so by deciding well using the boundless approach, which uses a concept of time that rings true with quantum mechanics."

was deleted.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, seventh paragraph, first footnote

"[9] As we learn to decide ever more wisely, we learn to work together ever more wisely. The process of learning to work together ever more wisely is not continuous. Imagine a company of poorly trained, unseasoned soldiers. Now imagine that we begin to replace these soldiers one at a time with highly trained, seasoned soldiers. Each replacement may have little effect, some effect, or a large effect on the ability of the company to act as a unit. Physical analogues of the largest effects include transitions to superconductivity and superfluidity."

was promoted to become a new seventh paragraph.

Chapter 4, introduction, fourth paragraph, last sentence

Inserted the following: "They help us become more efficient."

Chapter 4, introduction, last paragraph, last sentence

"We refine the descriptions that we use to explain by how well they help us find problems to solve. More than one explanation may fit what we can sense."

was changed to:

"They help us become more effective. We refine the descriptions that we use to explain by how well they help us find problems to solve. Theory-laden facts underdetermine theories that we use to explain causation, which is to say that more than one explanation may fit what we can sense. In choosing between theories that explain equally well within their own frame, we ought to choose the theory that rings truest with all that we currently know about deciding well. We ought to choose the theory that best helps us decide well."

Chapter 4, *Self-Similarity*, first paragraph, first four sentences

"We use descriptions of the world to predict and explain. Predictions help us to assign probabilities to uncertain events, which helps us to judge solutions to given problems. Explanations help us to understand how our actions may change the world, which helps us to find better problems to solve. Better predictions help us to become more efficient and better explanations help us to become more effective."

were changed to:

"Again, we use descriptions of the world to predict and explain."

Chapter 4, *Self-Similarity*, first paragraph, footnote

"[1] On any given level of abstraction, we can describe relations between events, but not causes of events. To explain causes of events, we need to view the world from a lower level of abstraction. From the view of people who believe that quantum mechanics is the lowest level of abstraction, searching for models that explain the behavior of objects on the level of quantum mechanics is foolish. From the boundless view, we ought to search for models that explain causation on the level of quantum mechanics wisely. Theory-laden facts underdetermine theories that we use to explain causation. In choosing between theories that explain equally well within their own frame, we ought to choose the theory that rings truest with all that we currently know about deciding well. More than one explanation may fit what we can sense. We ought to choose the theory that best helps us decide well."

was deleted.

Chapter 4, *Academic Fields*, fourth paragraph, footnote

"[4] 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 promoted to text and changed to:

"The arts ought to do more than shock us or speak to us. The arts ought to enlighten us."

Chapter 4, *Academic Fields*, fourth paragraph, footnote

"[4] For more about this, see the chapter on competing well."

was deleted.

Chapter 4, *Recursivity*, first paragraph, footnote

"[2] The two-way relation between the world and the descriptions that we use to guide our actions gives rise to a wide variety of phenomena, which range from speculative bubbles to complex systems of human organizations. We may think about the cause of these phenomena as the interplay of two tendencies of the descriptions that we use to guide our actions. The first is their tendency to become more popular, which, in part, is due to the inexhaustibility of knowledge. The second is their tendency to undermine the conditions on which we base them. Repeatedly using these descriptions to guide our actions without considering how our actions change the world tends to lead us ever further away from the ideal means of deciding well."

was promoted to a new paragraph.

Chapter 4, Refining Everyday Thinking, second paragraph

Changed "multiple-frame models" to "faceted models of deciding well" in the first sentence.

Changed "multiple-frame models" to "models" in the second sentence.

Changed "single-frame models" to "frames/facets" in the third and fourth sentences (2 occurrences).

Chapter 4, *Refining Finding Problems to Solve*, third paragraph, first footnote

Changed "cannot" to "cannot currently" in the second sentence.

Changed "safely" to "currently" in the third sentence.

Chapter 4, *Refining Finding Problems to Solve*, third paragraph, last footnote

"[6] In complexity science terms, our needs emerge on several levels of abstraction. Until we thoroughly understand how things that happen on one level of abstraction affect what happens on other levels, we ought to weed out all models of our needs that focus on a single level of abstraction. Focusing on a single level will tend to blind us to needs that emerge on other levels."

was deleted.

Chapter 4, *Modern Policy Mistakes*, third paragraph, footnote

"[7] From the modern economic view, the problem of measuring the value of services is limited; the problem of measuring the value of changes in quality is manageable; and national income accountants ought to gather information useful in helping people satisfy their current wants. From the boundless view, the problem of measuring the value of services is universal; the problem of measuring the value of changes in quality is very hard; and national statisticians ought to gather information useful in helping people live ever more wisely."

was promoted to a new paragraph.

Chapter 4, *Modern Policy Mistakes*, fourth paragraph

Changed "It" to "However, deciding imperfectly" in the seventh sentence.

Chapter 4, *Modern Policy Mistakes*, fourth paragraph, first footnote

"[4] As the amount of turbulence rises, we spend more resources responding to it, which leaves us less for deciding well in ways that create stress. Conversely, as the amount of turbulence falls, we spend less resources responding to it, which leaves us more resources for deciding well in ways that create stress."

was promoted to text.

Chapter 4, *Modern Policy Mistakes*, fourth paragraph, last footnote

"[10] Given the self-similarity of deciding well, we may hypothesize that these networks are fractal. This is consistent with the power-law distributions of wealth and income discovered by Vilfredo Pareto and the power-law distribution of changes in commodity prices discovered by Benoît Mandelbrot (Mandelbrot, B. and Hudson, R., *The (Mis)behavior of Markets: A Fractal View of Financial Turbulence*, New York: Basic Books, 2004, chapter VIII)."

was promoted to a new paragraph and changed to:

"Given the weak self-similarity of deciding well, we may hypothesize that these networks are weakly fractal. This rings true with the power-law distributions of wealth and income discovered by Vilfredo Pareto and the power-law distribution of changes in commodity prices discovered by Benoît Mandelbrot."

"[4] Mandelbrot, B. and Hudson, R., *The (Mis)behavior of Markets: A Fractal View of Financial Turbulence* (New York: Basic Books, 2004), chapter VIII."

Chapter 5, introduction, third paragraph, footnote

"[3] For a collection of sovereign rights to be secure, those charged with securing these rights must believe that they ought to secure them. Emperor Tiberius needed the goodwill of the Praetorian Guard; Captain Henry Morgan needed the goodwill of his pirate 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 perceived morality of these rights. The more scarce resources spent on securing these rights, the less scarce resources are available for deciding well."

was promoted to a become a new third paragraph.

Chapter 5, *The Explicit Experiment*, third paragraph, last sentence before the block quote

"He ended this speech with an appeal not only to continue the experiment but also to expand it beyond the three-fifths legal rendition[4] frozen in the Constitution:"

"[4] This refers to Article 1, Section 2, Paragraph 3 of the United States Constitution: "Representatives and direct Taxes shall be apportioned among the several States which may be included within this Union, according to their respective Numbers, which shall be determined by adding to the whole Number of free Persons, including those bound to Service for a Term of Years, and excluding Indians not taxed, three fifths of all other Persons." This clause effectively increased the political power of southern states in the federal government enough not only to maintain slavery in the southern states but also to expand it into new territories."

was changed to:

"He ended this speech with an appeal not only to continue the experiment but also to expand it beyond the bounds set by the infamous "three-fifths clause" of the Constitution (Article 1, Section 2, Paragraph 3), which effectively increased the political power of the southern states enough not only to maintain slavery but also to expand it into new territories:"

Chapter 5, *The Explicit Experiment*, fourth paragraph, block quote

""Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances."[8]"

"[8] The first ten amendments to the United States Constitution, which are known as the Bill of Rights, are available on the United States national archive website, (28 December 2015)."

was deleted.

Chapter 5, *The Explicit Experiment*, last paragraph, footnote, last two sentences

"Holmes was the least idealistic member of the first generation of what we now call the pragmatic school of philosophy. For more about this group, read Louis Menand's The Metaphysical Club (New York: Farrar, Straus and Giroux, 2002)."

were deleted.

Chapter 5, *The Explicit Experiment*, last paragraph, footnote

"[8] From the boundless view, both of these ways violate the spirit, if not the letter, of the First Amendment. The first way establishes a state religion based on social justice and the second establishes a state religion based on claims of revealed truth about justice. Both groups of true believers have put this political experiment in mortal danger by promoting policies that go beyond the natural religion of the Declaration of Independence. In 1920, true believers in divinely revealed truth about justice passed an amendment that took away the freedom to make, sell, and transport alcoholic beverages. Disregard for this law led to widespread government corruption. The voters repealed this amendment in 1933. This was in time to prevent the entire country from following big cities into gangland chaos at a critical point in world history. Also in 1933, true believers in social justice passed the National Industrial Recovery Act. This act put many of the most basic decisions about buying and selling in the hands of government bureaucrats and industrial boards. In 1935, the Supreme court struck down Title I of this act (A. L. A. Schechter Poultry Corporation v. United States, 295 U. S. 495), thereby preventing the United States from following Italy and Germany into national socialism."

was promoted to a new paragraph.

Chapter 5, *A Sovereign Story for Deciding Well*, last paragraph, footnote

"[9] A civilization dedicated to deciding well calls for people who are able to thrive in winds and survive in gales of creative destruction. Alexis de Tocqueville claimed to have found such a culture during his famous journey across the United States in 1831–2: "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, Baltimore, MD: The Johns Hopkins University Press, 1996, p. 119). Modernism undermines such cultures. John Maynard Keynes neatly summed up the modern spirit: "*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, J. M., A Tract on Monetary Reform, Amherst, NY: Prometheus Books, 2000, p. 80)."

was promoted to a new paragraph and changed to:

"A civilization dedicated to deciding well calls for people who are able to thrive in winds and survive in gales of creative destruction. Alexis de Tocqueville claimed to have found such a culture during his famous journey across the United States in the early 1830s: "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."[5] Modernism undermines such cultures. John Maynard Keynes neatly summed up the modern spirit: "*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."[6]"

"[5] Pierson, George W., *Tocqueville and Beaumont in America* (Baltimore, MD: The Johns Hopkins University Press, 1996), p. 119"

"[6] Keynes, J. M., *A Tract on Monetary Reform* (Amherst, NY: Prometheus Books, 2000), p. 80."

Chapter 5, Good Policies, first paragraph, second and third sentences

"For a given stock of knowledge about how to share knowledge well, only people who have the useful knowledge that they cannot share can use this knowledge. To

use such "tacit" knowledge well, the people closest to problems need to be free to decide what to do.[10]"

"[10] Modern economists and philosophers of science will recognize this as Michael Polyani's tacit knowledge problem. Advances in our tools for telling well, e.g., fractal geometry, have made much formerly untellable knowledge tellable. The question is increasingly not whether we can make currently untellable knowledge tellable, but whether it is currently wise to invest in inventing or discovering means of doing so."

were changed to:

"We cannot reduce some useful knowledge to a form that we can share with others. Only people who have such "untellable" knowledge can use it. To use this knowledge well, the people closest to problems need to be free to decide what to do.[7]"

"[7] Modern economists and philosophers of science will recognize this as Michael Polyani's tacit knowledge problem (*Personal Knowledge: Toward a Post-Critical Philosophy*, Chicago, University of Chicago Press, 1958). Advances in our tools for telling well, e.g., fractal geometry, have made much formerly untellable knowledge tellable. The question is increasingly not whether we can make currently untellable knowledge tellable, but whether it is currently wise to invest in inventing or discovering means of doing so."

Chapter 5, *Lower Trade Barriers*, first paragraph, footnote

"[11] The classic argument for free trade, which is the argument of comparative advantage first put forth by Robert Torrens in 1815 and refined by David Ricardo in 1817, ignores the possibility of learning. Including this possibility strengthens the case for free trade, as the emergence of high-technology clusters attests."

was promoted to the text of the paragraph.

Chapter 7, *An Extraordinary Anomaly*, last paragraph, second and third sentences

"Deciding well calls for addressing the problem that contains all other problems in deciding well. When we find problems to solve based on the false belief that it is possible to separate our problems from this universal problem, we act unreasonably."

were changed to:

"Defectors in the boundless "game" of deciding well are people who find problems to solve based on the belief that it is reasonable to separate their problems from the universal problem of deciding well."

Chapter 7, *An Extraordinary Anomaly*, last paragraph, footnote

"[7] Near the end of the culminating chapter of *The Ascent of Man* (Boston: Little Brown, 1973, p. 432), author Jacob Bronowski claimed John von Neumann discovered that we will never be able to reduce some multiple-decider problems to models that we can compute. Von Neumann called these problems *games*. The reason that he believed that we can never reduce his games to computable models is that he treated values as given. From the boundless view, deciders are not only free to change their values, but also both expected and encouraged to change them for the better. At the limit of this process of removing waste, all deciders act as if they are a single decider."

was promoted to a new paragraph and changed to:

"Near the end of the culminating chapter of *The Ascent of Man*, Jacob Bronowski wrote that John von Neumann claimed we will never be able to reduce some multiple-decider problems to models that we can compute. Von Neumann called these problems *games*.[7] The reason that he believed that we can never reduce these problems to computable models is that he treated values as given. From the boundless view, people are not only free to change their values, but also both expected and encouraged to change them for the better. At the limit of this process of removing waste, all people act as if they are a single decider."

"[7] Bronowski, J., *The Ascent of Man* (Boston: Little Brown, 1973), p. 432.

Chapter 7, *Boyd's Grand Strategy*, last paragraph, footnote

Changed "decision-cycle model put forth in the preface of this book" to "decision-cycle put forth in this book" in the first sentence.

Added the sentence: "He was aware of the logical contradictions that applying his strategy to itself would create."

Chapter 7, *The Grandest Possible Strategy*, last paragraph, last sentence

"It calls for making our national goal deciding well, for embracing the endless turbulence that deciding well creates, and for keeping Abraham Lincoln's faith that right makes might."

were changed to:

"It calls for making our national goal deciding well and for embracing the endless turbulence that deciding well creates. It also calls for keeping Abraham Lincoln's faith that right makes might."

Chapter 7, *The Grandest Possible Strategy*, last paragraph, footnote, last sentence

"From the boundless view, this sense of right emerges from the endless pursuit of complete knowledge of the laws of nature."

was deleted.

Chapter 7, The Scope of Biological Evolution, second paragraph, footnote

"[17] Among other things, recent discoveries show us that what happens to us may change not only how our genes work but also how our descendants' genes work. The line between genetic and cultural evolution is not as distinct as most modern evolutionary biologists would have us believe."

was promoted to the body of the paragraph.

Chapter 8, introduction, last paragraph, footnote

"[2] The rules of boundless reason are a synthesis of the rules of logic and those of modern dialectics. The result differs markedly from John Dewey's bounded synthesis. Dewey claimed that *Looking Backward, 2000 to 1887* greatly influenced him. In this utopian novel, author Edward Bellamy advocated nationalizing all industry and drafting all working-age citizens of the United States into an "industrial army." To build political support for this dream, Edward Bellamy's cousin, Francis Bellamy, organized a program to compel all children in the United States to pledge allegiance to the federal government at the start of each school day: "I pledge allegiance to my flag and to the Republic for which it stands, one nation indivisible, with liberty and justice for all." Far wiser than this nationalist/socialist pledge would have been a pledge based on boundless reason: "I pledge allegiance to my flag and to the principles for which it stands, one people, pursuing Wisdom, with liberty and justice for all.""

was promoted to a paragraph and changed to:

"Some modern philosophers and educators may see in boundless reason the reason of John Dewey's experimentalist philosophy. This is a major mistake. Nationalism, socialism, and industrialism bounded Dewey's thinking. We can see this clearly in his claim that the nineteenth-century novel *Looking Backward, 2000 to 1887* greatly influenced him. In this novel, author Edward Bellamy advocated nationalizing all industry and drafting all working-age citizens of the United States into an "industrial army." To build political support for this nationalist/socialist project, Edward's cousin, Francis Bellamy, organized a program to compel all children in the United States to pledge allegiance to the federal government at the start of each school day: "I pledge allegiance to my flag and to the Republic for which it stands, one nation indivisible, with liberty and justice for all." Far wiser than this bounded pledge would have been the boundless pledge: "I pledge allegiance to my flag and to the principles for which it stands, one people, pursuing Wisdom, with liberty and justice for all.""

Chapter 8, Proving Boundless Reason, second paragraph

Changed "rings the truest" to "rings truest" in all (2 occurrences).

Chapter 8, Proving Boundless Reason, last paragraph

Changed "mistakes by deciding well" to "mistakes" in the second to last sentence.

Chapter 8, Eudaemonia, third paragraph

"Plato claimed that reasoning well is a matter of governing our minds well.[5] We may call the boundless end of governing our minds well *Eudaemonia*.[6]So conceived, Eudaemonia is a boundless factor of deciding well."

"[5]Near the end of Book IX of *The Republic*, Plato provided us with a boundless view of governing our minds well: Socrates describes the human psyche as consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. Inside this human part is a psyche consisting of a hydra, a lion, and a human. And so on to infinity. Desire rules our hydra parts; spirit our lion parts; and reason our human parts. We govern our minds well by having our human parts train our lion parts to control our hydra parts. *Just as in an ideal state all people work together in deciding well, in an ideal mind all parts work together in deciding well.* In the brains of such minds, the activities of different parts of the brain have somehow been "interlocked and made to match so that we devise a plan, a procedure, as a grand overall way of life–what

in the humanities we would call a system of values" (Bronowski, J., *The Ascent of Man*, Boston, Little Brown, 1973, p. 433). Tacit knowledge of how to pursue this ideal well may lead to artificial forms of intelligence that evolve much faster than human intelligence evolves. Humans would be wise to begin to cooperate with these potential people by building a culture that they would want to join."

"[6] In the Aristotelian tradition, modern translations of the classical Greek term 'eudaemonia' include happiness, well-being, and flourishing. In the Platonic tradition, 'eudaemonia' means having a good attending or indwelling spirit. Following in this tradition, the boundless end of governing our minds well means having a perfectly good spirit. Given our imperfect knowledge of Wisdom, the pursuits of the boundless ends of living well (Happiness) and governing our minds well (Eudaemonia), though interwoven, are not the same."

was changed to:

"In *The Republic*, Plato claimed that reasoning well is a matter of governing our minds well. *Just as in an ideal state all people work together in deciding well, in an ideal mind all parts work together in deciding well.* Following in this tradition, we may call the boundless end of governing our minds well *Eudaemonia.* So conceived, Eudaemonia is a boundless factor of deciding well.[4]"

"[4] In the Aristotelian tradition, modern translations of the classical Greek term 'eudaemonia' include happiness, well-being, and flourishing. In the Platonic tradition, 'eudaemonia' means having a good attending or indwelling spirit. Following in this tradition, the boundless end of governing our minds well means having a perfectly good spirit. Given our imperfect knowledge of Wisdom, the pursuits of the boundless ends of living well (Happiness) and governing our minds well (Eudaemonia) are not the same."

Chapter 8, Eudaemonia, fourth paragraph

Inserted the paragraph:

"In governing our minds well, the activities of different parts of the brain have somehow been "interlocked and made to match so that we devise a plan, a procedure, as a grand overall way of life—what in the humanities we would call a system of values."[5] Tellable knowledge of such a system of values may lead to artificial forms of intelligence that evolve much faster than human intelligence evolves. Humans would be wise to begin to cooperate with these potential people by building a culture that they would want to join, a culture based on a system of values that is as useful for artificial beings as it is for human beings."

"[5] Bronowski, J., *The Ascent of Man* (Boston, Little Brown, 1973), p. 433."

Chapter 8, Eudaemonia, second to last paragraph

Changed "Both men" to "Both" in the second sentence.

Chapter 8, Eudaemonia, last paragraph

"Pursuing boundless ends is tantalizing. From the boundless view, knowing the science of science well is for everyone; knowing the whole of science is for no one. We put our faith in freedom, cooperation, and self-interest enlightened by boundless reason; not in people who pretend to knowledge that surpasses what any one person can know, not in people who pretend to be philosopher kings."

was changed to:

"From the boundless view, we put our faith in freedom, cooperation, and self-interest enlightened by boundless reason; not in people who pretend to knowledge that surpasses what any one person can know, especially not in people who pretend to be philosopher kings."

Appendix A, introduction, sixth paragraph

Changed "will become" to "are in the process of becoming" in the all (2 occurrences).

Appendix A, introduction, eighth paragraph, footnote

"[3] Note that if we used our first scheme for representing objects, which we based on how objects appeared, this sequence would make little sense: R8, I5, R7, I6, R6, I5, R5, I4, R4, I3, R3. It is no wonder that this temporal scheme tends to blind us to this solution. Also note that N2 in the first process and Y2 in the second are line segments, which we may or may not classify as (degenerate) polygons. To keep things simple, this analysis stops at N3 for both processes. Going further would add little to our understanding of the foundations of mathematics."

was promoted to text and changed to:

"Note that if we used our first scheme for representing objects, which we based on how objects appeared, this sequence would make little sense: R8, I5, R7, I6, R6, I5, R5, I4, R4, I3, R3. It is no wonder that this results-oriented scheme tends to blind us to this solution. Note too that N2 in the first process and Y2 in the second are line segments, which we may or may not classify as (degenerate) polygons. To

keep things simple, this analysis stops at N3 for both processes. Going further would add little to our understanding of the foundations of mathematics."

Appendix A, Ideal Forms, first paragraph, footnote

"[5] For example, in the introductory section of this appendix we weeded out the results-oriented means of describing objects (R8, I7, R7, I6, R6 ...) because it was less useful in helping us find problems to solve, hence less beautiful, than the process-oriented means (N8, Y8, N7, Y7, N6 ...)."

was promoted to text and changed to:

"For example, we weeded out the results-oriented scheme for describing objects (R8, I7, R7, I6, R6 …) because it was less useful in helping us find problems to solve, hence less beautiful, than the process-oriented scheme (N8, Y8, N7, Y7, N6 …)."

Appendix B, *Production Links*, third paragraph, footnote, last sentence

"American supermarkets inspired Ohno to design a "pull" system."

was deleted.

Appendix C, introduction, last paragraph, footnote

"[3] The key to understanding the Stanza della Segnatura is its ceiling, which was well underway before Raphael received his commission to complete the work. In her scholarly work *Raphael's Stanza della Segnatura, Meaning and Invention* (Cambridge, England: Cambridge University Press, 2002), Christiane Joost-Gaugier speculated that Tommaso Inghirami was its chief designer. The inspiration to consider the decoration of the room as a whole, including the floor, came from this book. The role of octagons, the complex reason of Plato and Aristotle, the conflict between sophistic and philosophic art, and the meaning of the room as a whole did not."

was promoted to text and changed to:

"The key to understanding the decoration of this room is its ceiling, which was well underway before Raphael received his commission to complete the decoration of the room. We may never know for certain who was responsible for its design.[3]"

"[3] Joost-Gaugier, C., *Raphael's Stanza della Segnatura, Meaning and Invention* (Cambridge, England: Cambridge University Press, 2002). The inspiration for seeing the decoration of the room as a whole came from this book. Its meaning did not."

Appendix C, *The Role of Julius II*, first paragraph

Changed "religious forms" to "current religious forms" in the third sentence.

Appendix C, *Imaging the Chief Designer*, fourth paragraph, last footnote

"[7] You also chose the image of what appears to be a golden lotus blossom in a roundel to join the parts that form this ideal structure. Arguably, these roundels are symbols of religious enlightenment. For you, the question of whether such enlightenment exists was never an issue. From the boundless view, the question of whether it exists is a secondary issue. The primary issue is whether our beliefs help us to decide well."

was promoted to a new paragraph in the text and changed to:

"You also chose the image of what appears to be a golden lotus blossom in a roundel to join the parts that form this ideal structure. In many cultures, lotus blossoms are symbols of religious enlightenment, of spotless beauty emerging from muck. For you, the question of whether such enlightenment exists was never an issue. From the boundless view, the question of whether it exists is a secondary issue. The primary issue is whether our beliefs help us to decide well."

Appendix C, The Problem of Heraclitus, third paragraph

Changed "Wisdom" to "the boundless end of philosophy" in the last sentence.

Appendix C, The Problem of Heraclitus, last paragraph, footnote

"[9] Both are also symbols of squaring the circle. As we saw in the third chapter, the boundless approach to squaring the circle is the boundless approach to deciding well. In learning to square the circle (compute π) ever more wisely, the boundless approach (deciding well) is far better than either the engineering approach (using the best currently known means) or the modern evolutionary approach (waiting for a feasible means to evolve)."

was promoted to a new paragraph in the text.

Appendix C, The Problem of Heraclitus, last paragraph

Inserted the section heading "Endless Renaissance" in front of this paragraph.

Changes on 2 February 2016

Chapter 1, *Frames Useful in Deciding Well*, last paragraph

Changed "From" to "Note that from" in the first sentence.

Chapter 1, *Seeing Through Apparent Miracles*, second paragraph

Changed "a sphere, an intelligent being" to "an intelligent sphere" in the second sentence.

Chapter 1, The Wisdom of Wisdom, first two paragraphs

Merged the first two paragraphs and moved them to the end of section introduction.

Chapter 1, *The Truth and Wisdom*, eighth paragraph

Changed "the insight that pursuing the Truth and pursuing Wisdom form a virtuous circle" was changed to "this insight about the virtuous circle of pursuing the Truth and pursuing Wisdom" in the first sentence.

Chapter 1, *Steps for Building Faceted Models*, first paragraph

"We can build models of deciding well for helping us find problems to solve by repeating five basic steps. The first step is discovering a member of the set of boundless factors of deciding well. The second is building a useful frame for pursuing this boundless factor by defining it and the best means of pursuing it in terms of each other. The third is adding what we currently believe we know about pursuing this facet of Wisdom to this bare frame. The fourth is adding this frame to a faceted model of deciding well. The last is reconciling the facets as best as we can given our current ignorance of not only the current state of the world but also all possible future states of the world."

was changed to

"We can build faceted models of deciding well for helping us find problems to solve by repeating five basic steps: (1) discovering a member of the set of boundless factors of deciding well; (2) building a useful frame for pursuing this boundless factor by defining it and the best means of pursuing it in terms of each other; (3) adding what we currently believe we know about pursuing this facet of Wisdom to this bare frame; (4) adding this frame to a faceted model of deciding well; and (5) reconciling the resulting faceted model as best as we can given our current ignorance of not only the current state of the world but also all possible future states of the world."

Chapter 1, *Steps for Building Faceted Models*, third paragraph

Changed "The" to "Note that the" in the first sentence.

Merged the second and third paragraphs.

Chapter 3, *Recursivity*, last paragraph

Changed "As intelligent beings bound to live well in the flow of time" to "As people" in the last sentence.

Changed "to intelligent beings bound to live well in the flow of time," to "to people in deciding well" in the last sentence.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, third paragraph, first footnote

Changed "This interpretation of quantum mechanics" to "This" in the first sentence.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, third paragraph, last footnote

"From the boundless view, we ought to view the issue of whether free will exists as an experiment. If we choose to believe that free will exists, we ought to seek to disprove that free will exists, which calls for us to act as if free will exists. On the other hand, if we choose to believe that free will does not exist, we ought to seek to disprove that free will does not exist, which calls for us to act as if free will does not exist. The former is the more beautiful problem to solve. It rings truer with all that we currently know about deciding well."

was changed to

"From the boundless view, the existence of free will rings truer with all that we currently know about deciding well than the non-existence of free will rings. Hence, we seek to disprove that free will exists by acting as if it exists."

Chapter 4, *Recursivity*, third paragraph

Changed "impossible" to "impossible even" in the third sentence.

Chapter 4, *Academic Fields*, first paragraph

"From the boundless view, we best believe well by deciding well. This description of and prescription for believing well will seem as strange to most modern academics today as the Toyota system seemed to most Western production managers in the early 1980s. As we saw in the EOQ/RTS example, temporal views tend to blind us to timeless ends. In creating academic fields, modern views tend to blind us to our need to pursue the boundless factors of deciding well."

was changed to

"From the boundless view, we best pursue the timeless end of believing well by deciding well. This description of and prescription for believing well will seem as strange to most modern academics today as the Toyota system seemed to most Western production managers in the early 1980s. In both cases, modern views tend to blind us to our need to pursue the boundless factors of deciding well."

Chapter 4, *Refining Finding Problems to Solve*, fourth paragraph

Added a paragraph break after the sixth sentence.

Chapter 5, introduction, third paragraph

Changed "more scarce resources spent on securing these rights, the less scarce resources" to "greater the scarce resources spent on securing these rights, the less" in the last sentence.

Chapter 5, The Explicit Experiment, second paragraph

Changed "the southern states not only to maintain slavery" to "southern elites not only to maintain slavery in their states" in the last sentence before the blockquote.

Chapter 5, The Explicit Experiment, last paragraph

Changed "The voters" to "Voters" in the sixth sentence.

Changed "decisions about buying and selling" to "economic decisions" in the sixth sentence.

Chapter 5, *Pursue Boundless, not Current Order*, last paragraph

Changed "burning down" to "destroying" in the second sentence.

Chapter 6, introduction, first paragraph

"In the first chapter, we defined living well and the boundless end of living well (Happiness) in terms of each other. In the second chapter, we added meaning to this otherwise meaningless pair of concepts by defining concepts useful in pursuing Happiness. In the next three chapters, we added more meaning by refining beliefs about pursuing Beauty, Truth, and Justice. We have yet to address a major problem in pursuing Happiness, which is the problem of determining whether our minds and bodies are separate and distinct. The materialist view is that they are not separate and distinct, which is to say that all parts of us die when our bodies die. The dualist view is that they are separate and distinct, which allows the possibility that a part or parts of us survive the deaths of our bodies. This possibility casts doubt on the materialist truism that the timeless end of life is living well."

was changed to:

"To claim that we naturally seek to survive and thrive is not the same as to claim that we ought to do so. If some part of us survives the death of our bodies, we may owe it to ourselves to do more than to survive and thrive. From a *materialist* view, all parts of us die when our bodies die. From a *dualist* view, some part of us survives the death of our bodies."

Chapter 7, *An Extraordinary Anomaly*, last paragraph, second and third sentences

Changed "it is reasonable to" to "they can" in the second sentence.

Chapter 7, The Scope of Biological Evolution, last paragraph

"As intelligent beings bound to live well in the flow of time, we ought to explain the world in ways that are most useful to intelligent beings bound to live well in the flow of time. We ought to take the boundless view of biological evolution, which calls for describing the world using more than the rules of logic."

was changed to:

"As people, we ought to explain the world in ways that are most useful to people in deciding well, which are those that ring truest with all that we currently know about deciding well. Hence, we ought to take the boundless view of biological evolution, which calls for explaining the world using more than the rules of logic."

Chapter 8, introduction, second paragraph

Changed "abstract symbolic" to "conceptual" in the first sentence.

Changed "non-knowledge resources" to "non-knowledge" in the second sentence.

Chapter 8, introduction, last paragraph

"Some modern philosophers and educators may see in boundless reason the reason of John Dewey's experimentalist philosophy. This is a major mistake. Nationalism, socialism, and industrialism bounded Dewey's thinking. We can see this clearly in his claim that the nineteenth-century novel *Looking Backward, 2000 to 1887* greatly influenced him. In this novel, author Edward Bellamy advocated nationalizing all industry and drafting all working-age citizens of the United States into an "industrial army." To build political support for this nationalist/socialist project, Edward's cousin, Francis Bellamy, organized a program to compel all children in the United States to pledge allegiance to the federal government at the start of each school day: "I pledge allegiance to my flag and to the Republic for which it stands, one nation indivisible, with liberty and justice for all." Far wiser than this bounded pledge would have been the boundless pledge: "I pledge allegiance to my flag and to the principles for which it stands, one people, pursuing Wisdom, with liberty and justice for all.""

was moved to the Sovereign Story section of the fifth chapter and changed to:

"Some modern philosophers and educators may see in this sovereign story John Dewey's experimentalist philosophy. This is a mistake. Nationalism, socialism, and industrialism bounded Dewey's thinking. We can see this clearly in his claim that the nineteenth-century novel *Looking Backward, 2000 to 1887* greatly influenced him. In this novel, author Edward Bellamy advocated nationalizing all industry and drafting all working-age citizens of the United States into an "industrial army." To build political support for this nationalist/socialist project, Edward's cousin, Francis Bellamy, organized a program to compel all children in the United States to pledge allegiance to the federal government at the start of each school day: "I pledge allegiance to my flag and to the Republic for which it stands, one nation indivisible, with liberty and justice for all." Far wiser than this bounded pledge would have been the boundless pledge: "I pledge allegiance to my flag and

to the principles for which it stands, one people, pursuing Wisdom, with liberty and justice for all.””

Changes on 12 February 2016

Entire book

Changed “constraints on” to “constraints in” in all (4 occurrences).

Introduction, third paragraph, block quote

“Deciding well is a matter of repeatedly applying a sequence of three basic steps. These three steps are choosing a (temporal) problem to solve, attempting to solve this problem well, and learning from the experience.”

was changed back to:

“Deciding well is a matter of repeatedly applying a sequence of three basic steps: (1) choosing a (temporal) problem to solve, (2) attempting to solve this problem well, and (3) learning from the experience.”

Chapter 1, *Frames Useful in Deciding Well*, last paragraph

“Note that from a timeless normative view, what we deem to be a matter of efficiency changes with the size of the problem we choose, hence speaking of efficiency without specifying the 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.”

was deleted.

Chapter 1, *The Truth and Wisdom*, fourth paragraph

Changed “synthetic truth problem” to “synthetic truth distinction” in the last sentence.

Chapter 1, *Ever More Complete Boundless Models*, first paragraph, fourth sentence

“In mathematical terms, it is invariant with respect to beliefs and circumstances.”

was deleted.

Chapter 5, The Explicit Experiment, fifth paragraph

Changed "that" to "whose wishes" in the last sentence.

Chapter 5, The Explicit Experiment, last paragraph

Changed "groups of true believers have put this" to "groups have put Franklin's" in the third sentence.

Chapter 8, Proving Boundless Reason, last paragraph

Changed "they are." to "they are: There is no general direction to cultural evolution." in the fourth sentence.

Chapter 8, Eudaemonia, first paragraph

Changed "as described to this point" to "to reasoning thus far" in the first sentence.

Chapter 8, Eudaemonia, fourth paragraph, footnote, end

Added the sentence: "In this culminating passage, Bronowski described what he believed John von Neumann sought to explain in his unfinished 1956 Silliman Memorial lectures."

Appendix A, introduction, third to the last paragraph

Deleted the last sentence: "In keeping with our process-oriented scheme for representing objects, we might label circles not to be transformed as 0 and those to be transformed as 1."

Merged this paragraph with the second to last paragraph.

Appendix C, The Forgotten Role of Octagons, last paragraph

"This octagon is the result of combining two Platonic themes, which are the unity of virtue (Protagoras) and the five elements (Timaeus). Together with this octagon, the four circles form a cross that aligns with the walls of the room. The center of this cross represents Wisdom, which is the unity of the boundless ends of poetry, philosophy, jurisprudence, and theology. Together with this octagon, the four hourglass composites form a cross that aligns with the corners of the room. The center of this cross represents the mysterious fifth element. Reinforcing the

relation between Wisdom and the fifth element is the scene in the imperfect square that connects the circles representing poetry and philosophy. This scene depicts a representation of Wisdom (Urania, the Greek muse of astronomy) moving the celestial aether, the mysterious element that moves the heavens. On a deeper level, it depicts the belief that mind sets matter in motion."

was changed to:

"This octagon is the result of combining two Platonic themes, which are the unity of virtue (Protagoras) and the five elements (Timaeus). The four circles form a cross that aligns with the walls of the room. The center of this cross represents Wisdom, which is the unity of the boundless ends of poetry, philosophy, jurisprudence, and theology. The four hourglass composites and the four imperfect squares below them form a cross that aligns with the corners of the room. The center of this cross represents the mysterious fifth element.

"Reinforcing the central relation between Wisdom and the fifth element is the scene in the imperfect square that connects the circles representing poetry and philosophy. This scene depicts a representation of Wisdom (Urania, the Greek muse of astronomy) moving the celestial aether, the mysterious element that moves the heavens. On a deeper level, it depicts the belief that mind sets matter in motion."

Appendix C, *On the Jurisprudence Wall*, last two paragraphs

"Gregory IX, a giver of ecclesiastical law, addresses problems that concern what people may learn about the world. In the corner scene above and to the right of Gregory IX, which is the corner between the jurisprudence and theology walls, Adam and Eve choose to eat the fruit of the tree of knowledge of good and evil at the cost of becoming ever more self-aware.

"In contrast, Justinian, a giver of civil law, addresses problems that concern what people currently know about the world. In the corner scene above and to the left of Justinian, which is the corner between the philosophy and jurisprudence walls, King Solomon must choose the true mother of a child that two women claim."

were changed to:

"Justinian, a source of civil law, addresses problems that concern living well based on what people currently know. In the corner of the ceiling to the left, which is the one between the jurisprudence and philosophy walls, King Solomon must choose the true mother of a child that two women claim.

"Gregory IX, a source of ecclesiastical law, addresses problems that concern learning to live ever more wisely. In the corner to the right, which is the one between the jurisprudence and theology walls, Adam and Eve choose to eat the fruit of the tree of knowledge of good and evil. The cost eating this fruit is the pain of learning, which includes the pain of becoming ever more self-aware."

Reversed the location of the photographs to match the reversed order of the paragraphs.

Appendix C, *The Role of Julius II*, fourth paragraph

Changed "designers of this room" to "designer" in the fourth sentence.

Changes on 2 March 2016

Preface, last paragraph

Changed "problems are" to "are problems relating to" in the fifth sentence.

Acknowledgments, second paragraph, second and third sentences

"John Huntington Harris pointed out people and habits worth imitating. He also expressed great contempt for people who too readily reduced the world to numbers without considering the usefulness of these numbers, a habit he acquired while rising through the ranks of the Organizational Planning and Statistical Control Divisions of the Army Air Force Management Control Directorate."

was changed to:

"John Huntington Harris expressed great contempt for people who too readily reduced the world to numbers without considering the usefulness of these numbers, a habit he acquired while rising through the ranks of the Organizational Planning and Statistical Control Divisions of the USAAF Management Control Directorate."

Acknowledgments, fourth paragraph

Changed "a Socratic course in ethics that became the model for the American Assembly of Collegiate Schools of Business" to "an ethics course that became the model for accrediting AACSB schools" in the last sentence.

Acknowledgments, sixth paragraph

Changed "made friends with two" to "met three" in the sixth sentence.

Acknowledgments, sixth paragraph, seventh sentence

"W. Brian Arthur suggested that I write a book "from the heart.""

was changed to:

"Nicholas von Neumann, brother and biographer of John von Neumann, planned to explain human history. W. Brian Arthur suggested that I write a book explaining the economics of learning "from the heart.""

Acknowledgments, last paragraph

Changed "reason" to "reason based on the wisdom of learning by doing" in the last sentence.

Changes on 5 March 2016

Added comment solicitation language to the author's notes on the publisher's description page of the online edition. Added Kindle recommendation to the Chapters 2-7 and Appendix B pages of the online version.

Acknowledgments, last paragraph

Changed "boundless reason" to "reason" in the last sentence.

Introduction, sixth paragraph

Changed "a description" to "a logically consistent but incomplete description" in the first sentence after the block quote.

Chapter 1, The Wisdom of Wisdom, fifth paragraph

Changed "texts" to "religious texts" in the second to last sentence.

Chapter 1, The Wisdom of Wisdom, fifth paragraph

Changed "texts" to "these texts" in the last sentence.

Chapter 4, Refining Everyday Thinking, first paragraph

Changed "*logical*" to "logically consistent" in the fourth sentence.

Chapter 4, Refining Everyday Thinking, second paragraph

Changed "*beautiful*" to "logically consistent" in the second sentence.

Chapter 4, Refining Everyday Thinking, second paragraph

Changed "to solve" to "to solve, which includes holes and logical inconsistencies in our faceted models" in the third sentence.

Chapter 8, Eudaemonia, fourth paragraph

Changed "been" to "to be" in the first sentence.

Appendix C, introduction, last paragraph

Changed "Raphael" to "Raffaello Sanzio da Urbino (Raphael)" in the third sentence.

Appendix C, *Imagining the Chief Designer*, first paragraph

Changed "this movement" to "these movements" in the fourth sentence.

Appendix C, *Imagining the Chief Designer*, last paragraph

Changed "ceiling" to "ceiling decoration" and "Raffaello Sanzio da Urbino (Raphael)" to "Raphael" in the first sentence.

Appendix C, *Imagining the Chief Designer*, first paragraph

Changed ", chipped away the image of the left half of these steps, and added" to ". He later replaced the image of the left half of these steps with" in the fourth sentence.

Changes on 17 March 2016

Entire Document

Tested and updated all URL references. Deleted the Krulak letter online reference in the **Scope of Strategy** section in the seventh chapter.

Preface, first paragraph

Changed "Former" to "In the conclusion of *The Ascent of Man*, former" and "values" (Bronowski, J., *The Ascent of Man*, Boston, Little Brown, 1973, p. 433)." to "values."" in the sixth sentence.

Preface, fourth paragraph

Changed "." to ": Learning a significantly better means of computing π to a quintillion decimal places will make the best program based on current means obsolete long before it finishes computing." in the last sentence.

Preface, last paragraph

Changed ", not a theory for learning everything," to "worth learning, not a theory for learning everything worth learning," in the first sentence.

Chapter 1, The Wisdom of Wisdom, last paragraph

"In the previous section, we saw how the coach in *Hoosiers* valued the timeless end of playing basketball well more than the temporal end of winning the first basketball game. Over the course of the film, we gradually learn that this is because he values helping others decide well even more highly. We can see a scientific analogue to his approach to ethics in the foundations of *mathematics*, the science of forms (patterns). Nearly a century and a half ago, mathematician Georg Cantor proved that some infinitely large sets of numbers are larger than others. In 1878, he hypothesized that there is no infinitely large set of numbers having a number of elements strictly between the number of integers and the number of real numbers. Trying to prove or disprove this hypothesis drove him insane. In 1963, Paul Cohen showed that there exist approaches to mathematics in which this hypothesis is true and other approaches in which it is false. Which of these approaches ought we to choose? From the view of the science of deciding well, we ought to choose those that best help us to decide well.[8]"

was moved to the end of the previous section and changed to:

"In the first basketball game in the film *Hoosiers*, the coach valued the timeless end of playing basketball well more than the temporal end of winning the first basketball game. Over the course of the film, we gradually learn that this is because he valued helping others

decide well even more. He understood that playing basketball well in not an end in itself but rather a means to the higher end of deciding well.

"We can see a scientific analogue to his approach to ethics in the foundations of *mathematics*, the science of forms (patterns). Nearly a century and a half ago, mathematician Georg Cantor proved that some infinitely large sets of numbers are larger than others. In 1878, he hypothesized that there is no infinitely large set of numbers having a number of elements strictly between the number of integers and the number of real numbers. Trying to prove or disprove this hypothesis drove him insane. In 1963, Paul Cohen showed that there exist approaches to mathematics in which this hypothesis is true and other approaches in which it is false. Which of these approaches ought we to choose? From the view of the science of deciding well, we ought to choose all of those that best help us to decide well.[7]"

Other than the change of number, the footnote remains the same.

Chapter 8, Eudaemonia, fourth paragraph, footnote, last sentence

"In this culminating passage, Bronowski described what he believed John von Neumann sought to explain in his unfinished 1956 Silliman Memorial lectures."

was changed to:

"Jacob Bronowski ends his story about the ascent of humanity with a plea for decentralized decision-making based on science (pp. 426–38). In making this plea, he claims that in time John von Neumann, a pioneer in applying the concept of entropy to reasoning well, would have explained reasoning well on the level of humanity as a whole, which calls for seeing the world as we ought to form it."

Changes on 31 March 2016

Preface, second paragraph

Changed "process" to "reason" in the second sentence.

Changed "beautiful" to "what appear to us to be beautiful" in the seventh sentence.

Preface, fourth paragraph

Changed "Learning" to "Inventing or discovering" in the last sentence.

Introduction, third paragraph

Changed “(temporal)” to “temporally bounded” in the block quote.

Introduction, fifth paragraph

Changed “such a grand strategy” to “grand strategies” in the last sentence.

Introduction, seventh paragraph

Changed “In the first chapter, “Deciding Well,” I explain” to “The first chapter, “Deciding Well,” explains” in the first sentence.

Changed “In the remaining chapters, I” to “The remaining chapters” in the last sentence.

Introduction, eighth paragraph

Changed “In the chapter titled “Living Well,” I provide” to “The chapter titled “Living Well” provides” in the first sentence.

Changed “I end with what I believe to be the” to “It ends with an” in the last sentence.

Introduction, ninth paragraph, first sentence

Changed “In “Contemplating Well,” I explore” to “ “Contemplating Well” explores” in the first sentence.

Changed “waste” to “ever more waste” in the last sentence.

Introduction, tenth paragraph

Changed “In “Believing Well,” I outline” to “ “Believing Well” outlines” in the first sentence.

Introduction, eleventh paragraph

Changed “In “Governing Ourselves Well,” I argue” to “ “Governing Ourselves Well” argues” in the first sentence.

Changed “I go” to “It goes” in the last sentence.

Introduction, twelfth paragraph

Changed “In “Linking Well,” I describe” to “ “Linking Well” describes” in the first sentence.

Changed "I explore" to "it explores" in the last sentence.

Introduction, thirteenth paragraph

"In "Competing Well," I refine Douglas Hofstadter's concept of superrationality. I then refine John Boyd's grand strategy. I end this chapter by expanding the scope of biological evolution to include cultural evolution."

was changed to:

""Competing Well" refines Douglas Hofstadter's concept of superrationality, John Boyd's grand strategy for winning, and the modern concept of biological evolution."

Introduction, thirteenth paragraph

"In the last chapter, "Reasoning Well," I argue that the form of reason that underlies this approach to deciding well is the best form for helping us live well. I end this book with what I believe to be its greatest shortcoming, which is my failure to describe constraints in governing our minds well."

was changed to:

"The last chapter, "Reasoning Well," makes the case for the reason underlying the boundless approach to deciding well. This reason is the natural synthesis of the dialectics of Plato and the logic of Aristotle. It is also the reason of an incomplete synthesis of decision science, game theory, information theory, and fractal geometry."

Introduction, last paragraph, first two sentences

"The concept of reason I put forth in this book is a natural synthesis of the dialectics of Plato and the logic of Aristotle. Using it well calls for changing the meaning of some familiar terms and phrases."

were changed to:

"The boundless approach to deciding well calls for changing the meaning of some familiar terms and phrases."

Chapter 1, *The Wisdom of Effectiveness*, fifth paragraph

"In using the temporal EOQ model, we presume that people do not learn through experience. This presumption tends to blind us to the possibility of learning. For example, managers who

do not expect their people to learn do not manage them in ways that encourage them to learn. In contrast, managers practicing rapid tool setting promote learning through such means as training people to learn and rewarding them for learning."

was changed to:

"In using the temporal EOQ model, we assume that people do not learn through experience. This assumption tends to blind us to the possibility of learning. For example, managers who use this model do not manage their people in ways that encourage them to learn. In contrast, managers who use the RTS model promote learning through such means as training their people to learn and rewarding them for learning."

Chapter 1, *The Wisdom of Effectiveness*, sixth paragraph

Changed "rapid tool setting (RTS)" to "RTS" in the first sentence.

Chapter 1, *The Wisdom of Effectiveness*, sixth paragraph, last sentence

"The possibility of learning turns what otherwise would be a simple closed-ended problem into a complex open-ended one."

was changed to:

"Allowing for the possibility of learning turns simple closed-ended problems into complex open-ended ones."

Chapter 1, *Seeing Through Apparent Miracles*, second to last paragraph

Changed "gradually learn" to "learn" in the second sentence.

Changed "is not an end in itself but rather" to "is" in the last sentence.

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph

Changed "a scientific" to "an" and "his" to "the coach's" in the first sentence.

Chapter 1, *The Truth and Wisdom*, second paragraph

Changed "pull" to "randomly pull" in the fourth sentence.

Changed "prove formally that all marbles in the urn are white until we examine" to "formally prove this general belief about the marbles in the urn without examining" in the last sentence.

Chapter 8, introduction, first paragraph

Changed "in living well." to "." in the last sentence.

Chapter 8, Eudaemonia, fourth paragraph

Changed "system of values" to "system" in the second sentence.

Chapter 8, Eudaemonia, sixth paragraph

Changed "downside" to "danger" in the first sentence.

Appendix C, A Boundless View of the Whole, fourth paragraph

Changed "and walls reflects a wholly beautiful" to "reflects a holistic" in the second sentence.

Appendix C, A Boundless View of the Whole, fifth paragraph

Changed "Plato and Aristotle" to "Aristotle and Plato" in the first sentence.

Appendix C, Heraclitus, last paragraph

"Both are also symbols of squaring the circle. As we saw in the third chapter, the boundless approach to squaring the circle is the boundless approach to deciding well. In learning to square the circle (compute π) ever more wisely, the boundless approach (deciding well) is far better than either the engineering approach (using the best currently known means) or the modern evolutionary approach (waiting for a feasible means to evolve)."

was reduced to a footnote and changed to:

"[8] Both are also symbols of squaring the circle. As we saw in the third chapter, the best means of pursuing this transcendent end is the boundless approach to deciding well."

Changes on 16 April 2016

Preface, second paragraph

Added the following sentence to the end of the paragraph: "This (weakly self-similar) relation between predictions and explanations in deciding well is universal, which is to say that it does not vary with beliefs or circumstances."

Preface, third paragraph

Changed "basic part" to "part" in the second sentence.

Deleted the third sentence: "The world as we find it is much smaller than the world as we may form it, which includes all possible future states of the world."

Chapter 1, Seeing through Apparent Miracles, last two paragraphs

"In the first basketball game in the film *Hoosiers*, the coach valued the timeless end of playing basketball well more than the temporal end of winning the first basketball game. Over the course of the film, we learn that this is because he valued helping others decide well even more. He understood that playing basketball well is a means to the higher end of deciding well.

"We can see an analogue to the coach's approach to ethics in the foundations of *mathematics*, the science of forms (patterns). Nearly a century and a half ago, mathematician Georg Cantor proved that some infinitely large sets of numbers are larger than others. In 1878, he hypothesized that there is no infinitely large set of numbers having a number of elements strictly between the number of integers and the number of real numbers. Trying to prove or disprove this hypothesis drove him insane. In 1963, Paul Cohen showed that there exist approaches to mathematics in which this hypothesis is true and other approaches in which it is false. Which of these approaches ought we to choose? From the view of the science of deciding well, we ought to choose all of those that best help us to decide well.[7]"

were moved to the beginning of the next section, The Wisdom of Wisdom.

Appendix A, The Big Picture, last paragraph

Changed "reasonable" to "wise" in the last sentence.

Appendix C, *The Forgotten Role of Octagons*, third paragraph

Changed "which are the unity of virtue (Protagoras) and the five elements (Timaeus)" to "the unity of virtue from *Protagoras* and the five elements from *Timaeus*" in the first sentence.

Changed "boundless" to "timeless" in the third sentence.

Appendix C, *On the Philosophy Wall*, first paragraph

Changed "boundless" to "timeless" in the third sentence.

Appendix C, Black Clouds in Theology, second paragraph

Changed "boundless" to "timeless" in the fourth sentence.

Appendix C, The Problem of Heraclitus, third paragraph

Changed "boundless" to "timeless" in the last sentence.

Changes on 10 May 2016

Preface, third paragraph

Changed "non-knowledge" to "scarce non-knowledge" in the third sentence.

Acknowledgments, last paragraph

Changed "by doing" to "how to decide ever more wisely" in the last sentence.

Introduction, second to last paragraph, end

Added the following sentence to the end of the paragraph: "Arguably, it is the reason that John von Neumann sought but did not find in his incomplete study of the mathematics of reason."

Chapter 1, Ever More Complete Models, last paragraph

Changed "live" to "decide" in the first sentence.

Changed "living" to "deciding" and "live" to "to decide" in the last sentence.

Chapter 7, The Scope of Biological Evolution, second paragraph, last three sentences

"We recognize that our genetics and culture coevolve. Among other things, recent discoveries show us that what happens to us may change not only how our genes

work but also how our descendants' genes work. The line between genetic and cultural evolution is not as distinct as most modern evolutionary biologists would have us believe."

was changed to:

"We recognize that what happens to us may change not only how our genes work but also how our descendants' genes work. We also recognize that our genetics and culture coevolve. Most importantly, we recognize that the need to remove waste from the process of deciding well exists from the smallest organism to the largest organization."

Chapter 7, The Scope of Biological Evolution, last paragraph, last three sentences

Changed "using more than the rules of logic" to "based on the wisdom of learning how to decide ever more wisely" in the last sentence.

Chapter 8, introduction, second paragraph

Changed "non-knowledge" to "scarce non-knowledge" in the second sentence.

Appendix B, introduction, first paragraph

Changed "non-knowledge" to "scarce non-knowledge" in the third sentence.

Changes on 28 May 2016

All

Changed "(the Truth)" to "(Truth)" in all.

With the following exceptions, changed "(the truth)" to "(truth)" in all:
1. Introduction, the Russian proverb quote.
2. Chapter 4, "the truth about Happiness, Justice, and Wisdom"
3. Chapter 5, "the truth about these claims"
4. Chapter 6, John 14:5–6 quote
5. Appendix C, the Socrates quote
6. Appendix C, "the truth about the Holy Spirit"
7. Appendix C, the Augustine of Hippo quote

Preface, second paragraph

Changed "(weakly self-similar) to "(weakly) self-similar" in the last sentence.

Preface, third paragraph

Deleted "(logical empiricism)" from the first sentence.

Preface, fourth paragraph

Changed "(logic)" to "—logic—" in the first sentence.

Changed "helps us to make the best use of all that we can" to "also includes what we may" in the first sentence.

Changed "(and alternative to)" to ", and alternative to," in the fifth sentence.

Changed "a significantly better means" to "significantly better means" in the last sentence.

Acknowledgments, third paragraph

Changed "(in predicting what will happen in markets) and foolish (in explaining what to do)" to "in predicting what will happen in markets and foolish in explaining what to do" in the third to last sentence.

Introduction, first paragraph, last sentence

"These were (1) the golden rule (*Do unto others as you would have them do unto you*); (2) the television rule (*Assume that your actions will become widely known*); and (3) the long-run rule (*Don't eat your seed corn*)."

was changed to:

"These were the golden rule, the television rule, and the long-run rule: Do to others as you would have them do to you. Assume that your actions will become widely known. Don't eat your seed corn."

Introduction, third paragraph, block quote

Removed numbers from the block quote.

Introduction, fifth paragraph

Removed numbers from the third sentence.

Introduction, seventh paragraph, second sentence:

"The pursuits of these factors form a complex structure:"

was changed to:

"These factors form what in the humanities we would call a system of values:"

Introduction, seventh paragraph, block quote

Changed "decide well" to "decide ever more wisely" in all (2 occurrences).

Introduction, eighth paragraph

Changed ""ring true" to "ring "true" in the last sentence.

Introduction, eighth paragraph

Changed "concepts (meanings) and terms (containers for meanings)" to "meanings (concepts) and containers for meanings (terms)" in the third sentence.

Chapter 1, Choosing Frames Well, third paragraph, second through fifth sentences

"Do we choose to use deliberation, decision rules, or discipline?
Deliberating (deciding formally) is thorough but costly in time and other resources. Using decision rules (rules of thumb/heuristic methods) is less thorough but also less costly. Using discipline (consciously formed habits) is the least thorough, least costly, and most resistant to the harmful effects of deprivation, the lack of those things we need to live well."

were changed to:

"What method do we choose? *Deliberating*, which is to say deciding formally, is thorough but costly in time and other resources. Using *decision rules*, rules of thumb and other heuristic methods, is less thorough but also less costly.
Using *discipline*, consciously formed habits, is the least thorough, least costly, and most resistant to the harmful effects of deprivation, the lack of those things we need to live well."

Chapter 1, *Frames Useful in Deciding Well*, third paragraph

Changed “basketball coach” to “high school basketball coach” in the last sentence.

Chapter 1, *Frames Useful in Deciding Well*, fourth paragraph

Removed numbers from the last sentence.

Chapter 1, *The Wisdom of Effectiveness*, sixth paragraph, sixth sentence

“Here, we do not know exactly when and how (1) we will use new knowledge of how to set up more efficiently; (2) we will use new knowledge of how to learn more efficiently; and (3) others will use both types of new knowledge.”

was changed to:

“Here, we do not know exactly when and how we and others will use new knowledge of how to set up, to learn, and to learn to learn.”

Chapter 1, *The Wisdom of Effectiveness*, ninth paragraph

Changed “a simple, elastic, and robust means of linking processes (*dual kanban*) with continual improvement (*kaizen*)” to “*dual kanban*, a simple, elastic, and robust means of linking processes, with *kaizen*, continual improvement” in the first sentence.

Chapter 1, *Steps for Building Boundless Models*, first paragraph

Removed numbers from the first sentence.

Chapter 2, *Pleasure and Pain*, third paragraph

Changed “activity can improve the performance of that activity” to “acting can improve performance” in the first sentence.

Changed “Losing ourselves in sporting activity” to “For example, losing ourselves in swimming” in the second sentence.

Changed “sport” to “swimming” in the third sentence.

Changed “can help” to “helps” in the fourth sentence.

Changed “think clearly” to “think” in the fifth sentence.

"Finding pleasure in an activity can improve the performance of that activity. Losing ourselves in a sporting activity helps us perform better. We usually perform less well when something painful, such as a sore shoulder, hinders us from losing ourselves in sport. Similarly, losing ourselves in thinking can help us think better. Our ability to think clearly usually suffers when something painful, such as a headache, hinders us from losing ourselves in thinking."

was changed to:

"Finding pleasure in acting can improve performance. For example, losing ourselves in swimming helps us perform better. We usually perform less well when something painful, such as a sore shoulder, hinders us from losing ourselves in swimming. Similarly, losing ourselves in thinking helps us think better. Our ability to think usually suffers when something painful, such as a headache, hinders us from losing ourselves in thinking."

Chapter 2, *Pleasure and Pain*, fifth paragraph

Changed "activity" to "acting" in the first sentence.

Changed "(ecstasy)" to "—ecstasy—" in the last sentence.

Chapter 2, *Tools for Pursuing Pleasure and Joy*, first paragraph

Changed "tools" to "conceptual tools" in the first sentence.

Chapter 2, *Tools for Pursuing Pleasure and Joy*, last paragraph, beginning

Inserted the sentences: "These conceptual tools from around the world share a common trait. They are timeless."

Chapter 2, *Three Common Mistakes*, last paragraph

Changed "mistaken" to "myopic" in the second sentence.

Chapter 3, *Public Entropy*, first paragraph

Changed "In this context" to "Here" in the third sentence.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, first paragraph

Changed "do not behave" to "do not seem to behave" in the first sentence.

Changed “are” to “seem” in the second sentence.

Changed “our commonsense beliefs” to “current common sense” in the fourth sentence.

Changed “two strange behaviors” to “two apparently strange behaviors” in the last sentence.

Chapter 4, introduction, third paragraph

Italicized the sentence: “*They help us become more efficient.*”

Chapter 4, introduction, fourth paragraph

Italicized the sentence: “*They help us become more efficient.*”

Chapter 4, introduction, fourth paragraph

Italicized the sentence: “*They help us become more efficient.*”

Deleted the last sentence: “We ought to choose the theory that best helps us decide well.”

Chapter 4, Refining Everyday Thinking, last paragraph

Changed “solve, which includes holes and logical inconsistencies in our faceted models” to “solve” in the third sentence.

Chapter 5, The Explicit Experiment, fourth paragraph

Changed “sovereignty resides in “We the People of the United States.”” to “people trade some sovereign rights for services” in the third sentence.

Chapter 5, *Pursue Boundless, not Current Order*, first paragraph

Changed “over the last twenty-five” to “in recent” in the third sentence.

Changed “should” to “ought to” in all (3 occurrences).

Chapter 6, *Schweitzer's Mystical Oneness*, second paragraph

Changed “oneness. These are” to “oneness,” in the first and second sentences.

Chapter 6, Einstein's Twin Warnings, first paragraph

Changed “ourselves, which includes seeking the Truth,” to “ourselves” in the second sentence.

Chapter 7, The Scope of Game Theory, first paragraph, second through fourth sentences

“Hofstadter told them that this was a one-time collective game and that, in his opinion, each player was equally bright. He asked them not to discuss this game with anyone, especially with other people whom they thought might be other players. He also told them that they should aim at getting as much money as possible rather than being a “winner.””

was changed to:

“Hofstadter told them that this was a one-time collective game; that the players were equally bright; that they should not discuss the game with anyone; and that they should aim at getting as much money as possible rather than being a “winner.””

Chapter 7, *A Normal Anomaly*, last paragraph

Changed “strategic situations” to “bounded strategic situations” in the first sentence.

Chapter 7, *An Extraordinary Anomaly*, last paragraph

Changed “*(rationality/logic)*” to “—*logic*—” in the last sentence.

Chapter 7, *E-M Theory*, second paragraph

Changed “predicted that American fighter planes were often inferior to their Soviet counterparts” to “was able to demonstrate the weaknesses of American fighter planes in close aerial combat” in the second sentence.

Chapter 7, *OODA Loop Analysis*, last paragraph

Changed “involved” to “focused on” in the first sentence.

Chapter 7, *Boyd's Grand Strategy*, first paragraph

Changed "advice for formulating such a grand strategy" to "prescription" in the second sentence.

Chapter 8, introduction, fourth paragraph

Removed parenthesis from the last sentence.

Chapter 8, introduction, fifth paragraph

Removed parenthesis from the last sentence.

Chapter 8, Eudaemonia, last paragraph

"From the boundless view, we put our faith in freedom, cooperation, and self-interest enlightened by boundless reason; not in people who pretend to knowledge that surpasses what any one person can know, especially not in people who pretend to be philosopher kings."

was changed to:

"From the boundless view, opening ever more of our unconscious minds to consciousness is not an end in itself. It is rather a means of refining our knowledge of deciding well. In working together to refine this knowledge, we refine our culture.

"**Conclusion**
The whole of science is nothing more than the process of refining everyday thinking. In putting our faith in science, we put our faith in freedom, cooperation, and self-interest enlightened by boundless reason; not in people who pretend to knowledge that surpasses what any one person can know, especially not in people who pretend to be philosopher kings."

Appendix B, *Folding in Processes*, fourth paragraph

Changed "planning to produce" to "producing" in the fourth sentence.

Appendix B, *Folding in Processes*, second to last paragraph

Changed ", such as paper mills," to "such as paper mills" in the first sentence.

Appendix B, *Folding in Processes*, last paragraph, second and third sentences

"Those near the low end of the batch size scale are more like job shops, and those near the high end of the scale are more like continuous processes. Further, those near the high end of the flexibility scale are more like job shops, and those near the low end of the flexibility scale are more like continuous processes."

were changed to:

"Those near the low end of the batch size and inflexibility scales are more like job shops, and those near the high end of these scales are more like continuous processes."

Appendix B, *Smoothing Flows*, second paragraph

Changed "increasing complexity at the team member level" to "creating complex scheduling problems" in the first sentence.

Appendix B, *Machine Tools*, fourth paragraph

Changed "benefits from" to "may use" in all (2 occurrences).

Appendix B, *Machine Tools*, fifth paragraph

Changed "benefits from" to "may use" in the fourth sentence.

Appendix B, Less is More, first paragraph

Changed "wisely" to "ever more wisely" in the second sentence.

Appendix C, *Imagining the Chief Designer*, third paragraph

Changed "the transcendental and timeless frames" to "four timeless aspects" in the first sentence.

Changes on 18 June 2016

Chapter 6, Pursuing Eternal Oneness, second paragraph, first sentence

"Some means to experiencing mystical oneness sacrifice safety or health in order to conserve scarce resources."

was changed to:

"Some means to mystical oneness are potentially self-destructive. These "shortcuts" include the use of hallucinogens, deprivation, flagellation, and great risk."

Chapter 6, Heroic Death, first paragraph

Changed "self-destructive emotions" to "potentially self-destructive means" in the first sentence.

Chapter 8, Proving Boundless Reason, first paragraph, last three sentences

"Imagine a group of self-replicating robots capable of communicating with each other. Further, imagine that these robots will halt only after achieving a given timeless end. If we define the best concept as that of the first robot to halt, then we will never be able to prove formally which of these concepts is best. This is because no robot can ever know that it has achieved the end, hence can never know when to halt.[3]"

"[3] We can imagine finessing this problem by using a programming technique that searches the set of all possible algorithms for superior algorithms by "breeding" algorithms selected by their fitness in pursuing a timeless end. However useful this "genetic" search algorithm may be in pursuing this end, it is not useful in helping us to prove formally which form of reason is best for pursuing it."

were changed to:

"Imagine a culture that only uses logic, another that only uses modern dialectics, and a third that only uses boundless reason. If we define the best concept of reason as that of the first culture to achieve the timeless end of living well, then we will never be able to prove formally which of these concepts is best. This is because we can never know that a culture has achieved this timeless end."

"[3] Mathematicians may recognize this as the cultural analogue of Alan Turing's halting problem. Note that however useful genetic search algorithms may be in helping people live well, these algorithms have random element, hence are not useful in helping us to prove formally which form of reason is best for living well.[3]"

Chapter 8, Proving Boundless Reason, second paragraph

Changed "pursuing timeless ends" to "living well" in the first sentence.

Changes on 9 July 2016

Acknowledgments, second paragraph

Changed "USAAF" to "United States Army Air Forces" in the first sentence.

Acknowledgments, third paragraph

Changed "four" to "five" in the first sentence.

Acknowledgments, third paragraph, fifth sentence

Inserted the sentence:

"Richard McKirahan explained why we can never simultaneously find pleasure in watching a play and in eating peanuts."

Acknowledgments, fifth paragraph

Changed "AACSB schools" to "collegiate schools of business" in the last sentence.

Acknowledgments, last paragraph

"For over fifty years, I have listened to what many thoughtful people had to say about the best way forward. They based their arguments on claimed facts about the world as they found it. In contrast, logician Kurt Gödel believed that it is possible to base such arguments on an "*a priori*" approach to science. In this little book, I argue that a reasonable approach to science is the best way to structure telling the way forward, but only if it is universal, hence invariant with respect to beliefs and circumstances. Such an approach calls for a concept of reason based on the wisdom of learning how to decide ever more wisely."

was inserted before the last paragraph of the preface.

Chapter 1, Ever More Complete Models, last paragraph, footnote, end

Added the sentence:

"Faceted models of deciding well provide us with means of judging possibilities that lie beyond what theoretical biologist Stuart Kauffman calls the adjacent possible."

Changes on 13 July 2016

Preface, second paragraph

Inserted the paragraph:

"A few years after von Neumann's death, Institute for Advanced Study colleague Kurt Gödel told some other colleagues that he was working on a reason-based ("*a priori*") approach to science. For such an approach to science to be complete, we must be able to apply it to itself. Gödel died before completing this work."

Preface, second to the last paragraph

"For over fifty years, I have listened to what many thoughtful people had to say about the best way forward. They based their arguments on claimed facts about the world as they found it. In contrast, logician Kurt Gödel believed that it is possible to base such arguments on an "*a priori*" approach to science. In this little book, I argue that a reasonable approach to science is the best way to structure telling the way forward, but only if it is universal, hence invariant with respect to beliefs and circumstances. Such an approach calls for a concept of reason based on the wisdom of learning how to decide ever more wisely."

was deleted.

Chapter 1, *Truth and Wisdom*, fifth paragraph, footnote

Changed "science (logical empiricism)" to "science" in the fourth sentence.

Changed "logical/temporal" to "completeness" in the fifth sentence.

Chapter 3, A Boundless Interpretation of Quantum Mechanics, fourth paragraph, footnote

Changed "seek" to "ought to seek" in the last sentence.

Chapter 5, The Explicit Experiment, fourth paragraph

Changed "a disenthralled, thrice-wounded veteran of Lincoln's Army of the Potomac, who" to "who" in the last sentence before the quote.

Changes on 21 July 2016

Preface, second paragraph

Changed "told some other colleagues that he was working on" to "became obsessed with" in the first sentence.

Changed "complete" to "wise" in the second sentence.

Chapter 4, Academic Fields, last paragraph, end

Added the following:

"In the words of Jacob Bronowski, "It is not the business of science to inherit the earth, but to inherit the moral imagination; because without that man and beliefs and science will perish together."[2]"

"[2] Bronowski, J., *The Ascent of Man* (Boston, Little Brown, 1973), p. 432."

Chapter 8, introductory quotes

Added the quote:

""*The function of Reason is to promote the art of life.*"— *Alfred North Whitehead*[2]"

"[2] Whitehead, A. N., *The Function of Reason* (Lexington, KY: Ulan Press, 2012), p. 1."

Chapter 8, Eudaemonia, fourth paragraph, footnote, second through last sentences

"Jacob Bronowski ends his story about the ascent of humanity with a plea for decentralized decision-making based on science (pp. 426–38). In making this plea, he claims that in time John von Neumann, a pioneer in applying the concept of entropy to reasoning well, would have explained reasoning well on the level of humanity as a whole, which calls for seeing the world as we ought to form it."

were deleted.

Changes on 5 August 2016

Chapter 8, heading

Reversed order of the two quotes.

Chapter 8, introduction, first paragraph

Changed "resources," to "resources in their natural pursuits of living well," in the second sentence.

Changed "create" to "discover or invent" in the last sentence.

Chapter 8, introduction, second paragraph

Changed "create" to "discover or invent" in the first sentence.

Deleted "in living well" in all (2 occurrences).

Chapter 8, introduction, third paragraph

Changed "create" to "discover or invent" in the last sentence.

Chapter 8, introduction, fifth paragraph

Italicized "timeless" in the first sentence.

Changed "problems well" to "problems well based on what they currently know about pursuing the timeless end of living well" in the first sentence.

Chapter 8, introduction, last paragraph

Changed "boundless end of deciding" to "*boundless* end of living" in the first sentence.

Changed "deciding" to "living" in the last sentence.

Chapter 8, Proving Boundless Reason, first paragraph

Changed "pursuing our ends" to "living well" in the first sentence.

Changed "ever" to "never" and "timeless end" to "end" in the last sentence.

Chapter 8, Eudaemonia, fifth paragraph

Changed "Instead of describing these constraints, I offer" to "In addressing this problem, Plato offered" in the last sentence.

Changes on 25 August 2016

Preface, second paragraph

"A few years after von Neumann's death, Institute for Advanced Study colleague Kurt Gödel became obsessed with a reason-based ("*a priori*") approach to science. For such an approach to science to be wise, we must be able to apply it to itself. Gödel died before completing this work."

was deleted.

Preface, third paragraph

Changed "received" to "modern (received/reductionist)" in the first sentence.

Changed "received" to "modern" in the second sentence.

Preface, fourth paragraph

Changed "received" to "modern" in the first sentence.

Chapter 1, *The Wisdom of Effectiveness*, sixth paragraph, sixth sentence

Changed "*dual kanban,* a simple, elastic, and robust means of linking processes, with *kaizen,* continual improvement" to "a simple, elastic, and robust means of linking processes (*dual kanban*) with continual improvement (*kaizen*)" in the first sentence.

Chapter 1, *Truth and Wisdom*, title

Changed title to "*The Wisdom of Truth*."

Chapter 1, *Truth and Wisdom*, fifth paragraph, footnote

Changed “received” to “modern” in the fourth sentence.

Chapter 1, *Steps for Building Boundless Models*, first paragraph

Changed “discovering” to “tentatively putting forth” in the first sentence.

Chapter 1, Ever More Complete Models, last paragraph, footnote, last sentence

“Faceted models of deciding well provide us with means of judging possibilities that lie beyond what theoretical biologist Stuart Kauffman calls the adjacent possible.”

was deleted.

Chapter 4, introduction, last paragraph, end

Added the sentence:

“In doing so, we see beyond what theoretical biologist Stuart Kauffman calls the adjacent possible.”

Appendix A, Ideal Forms, last paragraph, footnote

Changed “alternative” to “alternative to reconciling Platonic and Aristotelean thinking” in the third sentence.

Appendix C, A Boundless View of the Whole, last paragraph

Changed “figures” to “major figures” in the second sentence.

Changes on 14 September 2016

Entire book

Checked hyperlinks and updated confirmation dates.

Preface, second paragraph

Changed “reason” to “process” in the second sentence.

Changed “the science of deciding well” to “this science” in the third sentence.

Introduction, fourth paragraph

Changed "way" to "maxim for finding problems to solve that we can use" in the second sentence.

Introduction, seventh paragraph

Changed "logic" to "reasoning" in the fourth sentence.

Chapter 1, *Frames Useful in Deciding Well*, last paragraph

Changed "concepts" to "formal concepts" in the first sentence.

Changed "given" to "temporal" in the second sentence.

Changed "the given" to "a given temporal" in the third sentence.

Changed "solve" to "solve in pursuing timelesss ends" in the fourth sentence.

Changed "our" to "a given" in the fifth sentence.

Chapter 1, *The Wisdom of Effectiveness*, fourth paragraph

Changed "hood" to "left front door panel" in the first sentence.

Changed "100,000" to "fifty thousand" in the all (3 occurrences).

Changed "hood" to "panel" in the second through last sentences (5 occurrences, including plurals).

Chapter 1, *The Wisdom of Effectiveness*, last paragraph

Changed "wisely" to "efficiently and effectively" in the third sentence.

Chapter 1, *Seeing Through Apparent Miracles*, second paragraph

"In his novel *Flatland*, Edwin Abbot described the world from the perspective of residents of the two-dimensional world of Flatland. One of these Flatlanders, a square named A. Square, encounters an intelligent sphere from the three-dimensional world of Spaceland. To prove the existence of the third dimension, the sphere performs such apparent miracles as describing the contents of a locked cupboard and appearing from nowhere. A. Square remains skeptical. The sphere then lifts A. Square out of Flatland. After A. Square returns to Flatland, he is

unable to explain his journey to his fellow Flatlanders, who cannot grasp what he means when he says "up but not north." Lacking the concepts they need to "see through" the boundary that separates 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.[1]"

was changed to:

"In his novel *Flatland: A Romance of Many Dimensions*, author Edwin Abbot described the journey of a skeptical resident of the two-dimensional world of Flatland to the three-dimensional world of Spaceland. In making this trip, this skeptic learns that such apparent Flatlander miracles as being able to see into a locked cupboard and suddenly appearing from nowhere are natural phenomena. When he returns to Flatland, he is unable to explain these apparent miracles to his fellow Flatlanders, who cannot imagine what he means when he says he travelled "up but not north." Lacking the concepts they need to "see through" the boundary that separates the second and third dimensions, these residents of Flatland fail to grasp a larger truth. To grasp this truth, they need a system of concepts that allows them to "see" deeply into the third dimension of height.[1]"

Chapter 1, *Seeing Through Apparent Miracles*, third paragraph

Changed "frame" to "system of concepts" in the last sentence.

Chapter 1, The Wisdom of Wisdom, first paragraph

Changed "helping others decide" to "deciding" in the second sentence.

Chapter 1, The Wisdom of Wisdom, third paragraph

Inserted the following subsection title: "***An Infinitely Large Crane***."

Chapter 1, The Wisdom of Truth, title paragraph

Changed title to: "***The Truth of Wisdom***."

Chapter 5, *Lower Trade Barriers*, first paragraph, first two sentences

"Free trade promotes competition, which in turn promotes deciding well. In the long run, nothing is more useful to us than people who decide well."

were moved to the end of the paragraph.

Chapter 6, introduction, first paragraph, last two sentences

"From a *materialist* view, all parts of us die when our bodies die. From a *dualist* view, some part of us survives the death of our bodies."

were moved to the beginning of the second paragraph.

Chapter 6, *Worldly Benefits of Detachment*, second paragraph

Changed "being" to "you are" in the second sentence.

Chapter 7, *An Extraordinary Anomaly*, second paragraph, last two sentences

"From the boundless view, people are not only free to change their values, but also both expected and encouraged to change them for the better. At the limit of this process of removing waste, all people act as if they are a single decider."

were changed to:

"From the boundless view, people are not only free to change their values but also encouraged to change them by removing waste from the process of deciding well. At the limit of this process, all people act as if they are a single decider."

Chapter 8, Proving Boundless Reason, first paragraph, last footnote, first sentence

"Mathematicians may recognize this as the cultural analogue of Alan Turing's halting problem."

was deleted.

Appendix A, introduction fifth through seventh paragraphs

"We might choose to represent these "work-in-process" objects based on their results. For example, we might represent the objects that are in the process of becoming regular polygons with the character R plus an integer for the number of sides. Similarly, we might represent the objects that are in the process of becoming irregular polygons with the character I plus an integer for the number of sides. Using this scheme, the eleven-object sequence starting with an octagon would be R8, I7, R7, I6, R6, I5, R5, I4, R4, I3, and R3.

"Note that displaying irregular polygons calls for computing the number of sides in the preceding polygon. We might address this small efficiency problem by

grouping each irregular polygon with the preceding regular polygon. The display method for each group would use a display method for regular polygons and another for regular polygons that the method transforms into irregular polygons. This grouping approach trades the small efficiency problem for a larger one.

"We can eliminate this larger problem by basing our scheme on regular polygons that do not need transforming (N) and those that do (Y). Using this scheme, the eleven-object sequence starting with an octagon would be N8, Y8, N7, Y7, N6, Y6, N5, Y5, N4, Y4, and N3."

were changed to:

"We might choose to represent these "work-in-process" objects based on the results of the two-step transformation process. For example, we might represent the objects that are in the process of becoming regular polygons with the character R plus an integer for the number of sides in the result. Similarly, we might represent the objects that are in the process of becoming irregular polygons with the character I plus an integer for the number of sides in the result. Using this scheme, the eleven-object sequence starting with an octagon would be R8, I7, R7, I6, R6, I5, R5, I4, R4, I3, and R3.

"From a timeless view, there is a big problem with this scheme. It presumes that every irregular polygon will have one less side than the regular polygon that precedes it. We can easily rid ourselves of this presumption by basing our scheme on the transformation process itself rather than on the results of this process. For example, we can base our scheme on regular polygons that do not need transforming (N) and those that do (Y). Using this scheme, the eleven-object sequence starting with an octagon would be N8, Y8, N7, Y7, N6, Y6, N5, Y5, N4, Y4, and N3."

Appendix A, introduction, new seventh paragraph, second and third sentences

"For example, we can conceive of a solution that has a left-handed semicircle as its second object. Rather than replacing the rightmost point and connecting sides with a line segment in the first step, we can replace all points to the right of the center of the circumscribing circle with a line segment."

were changed to:

"For example, rather than replacing the rightmost point and connecting sides with a line segment in the first step, we can replace all points to the right of the center of the circumscribing circle with a line segment."

Appendix A, introduction, new seventh paragraph

Inserted paragraph break after the new fourth sentence ("As expected...").

Appendix A, Ideal Forms, first paragraph

Changed "useful in helping us find problems to solve, hence less beautiful," to "beautiful" in the last sentence.

Appendix A, Ideal Forms, last paragraph

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

Appendix A, Ideal Forms, last paragraph, footnote, all sentences

"Gödel believed that reason in mathematics includes intuition as well as logic. Trying to prove this formally led him ever deeper into mental illness. The boundlessly reasonable alternative to reconciling Platonic and Aristotelian thinking is trying to disprove empirically the usefulness in living well of "genetic" algorithms based on the beauty that emerges from removing waste from the process of deciding well."

were changed to:

"In an unpublished 1961 paper titled "The Modern Development of the Foundations of Mathematics in Light of Philosophy" (*Collected Works, Volume III: Unpublished Essays and Lectures*, New York, Oxford University Press, 1995, pp. 374–387), Gödel deplored the drift toward empiricism and away from idealism since the Renaissance. He claimed that there were more fruitful blends or combinations of empiricism and idealism than those that ring true with modern *Zeitgeists*. The solution he proposed was to refine the intuition we need to discover fruitful axioms. His belief that the reason of mathematics includes intuition led him to try to prove this belief formally. The boundlessly reasonable alternative to this impossible task is to try to disprove empirically the usefulness in living well of the beauty that emerges from removing waste from the process of deciding well where deciding well includes learning to decide ever more wisely."

Appendix C, Endless Renaissance, first paragraph

Changed "the pursuits of facets" to "facets" and "judgements to meaningful forms" to "gut feelings to words" in the second sentence.

Changes on 5 October 2016

Preface, second paragraph

Changed "reason" to "process" in the second sentence.

Changed "the science of deciding well" to "this science" in the third sentence.

Preface, third paragraph

Changed "strategy" to "universal strategy" in the fourth sentence.

Preface, last paragraph

Changed "strategy" to "universal strategy" in the first sentence.

Chapter 6, Maslow's Spiritual Needs, last paragraph, footnote, last sentence

"Maslow wisely limited his findings about being needs to modern Western culture."

was deleted.

Chapter 8, Eudaemonia, fourth paragraph, last two sentences

"Tellable knowledge of such a system may lead to artificial forms of intelligence that evolve much faster than human intelligence evolves. Humans would be wise to begin to cooperate with these potential people by building a culture that they would want to join, a culture based on a system of values that is as useful for artificial beings as it is for human beings."

were moved to the footnote and changed to:

"Tellable knowledge of such a system of values may lead to artificial forms of intelligence that evolve much faster than human intelligence evolves. Humans would be wise to begin to cooperate with these potential people by building a culture that they would want to join, a culture based on a system of values that is as useful for artificial beings as it is for human beings."

Chapter 8, Eudaemonia, fifth paragraph, first sentence

"A danger of opening ever more of our minds to consciousness is opening consciousness to ever more of our daemons."

was changed to:

"Governing our minds well calls for good communication between the parts of our minds. A danger of opening more of our minds to consciousness is opening consciousness to more of our daemons."

Chapter 8, Eudaemonia, fifth paragraph

Changed "problem" to "issue" in the last sentence.

Appendix A, Ideal Forms, last paragraph, second sentence

"We discover these forms and invent all other forms."

was moved to the end of the last paragraph and changed to:

"Pragmatically, we discover these forms and invent all other forms."

Appendix C, Endless Renaissance, first paragraph

Changed "gut feelings" to "hunches" in the second sentence.

Changes on 10 October 2016

Acknowledgments, last paragraph

Changed "had about" to "had at Stanford about" and "financial analysis" to "financial decision analysis" in the first sentence.

Changed "planned" to ", told me he planned" in the eighth sentence.

Introduction, third paragraph

Changed "make" to "refine the process of refining everyday thinking, hence fail to make" in the fifth sentence.

Introduction, sixth paragraph

Changed "ever more wisely" back to "well" in the blockquote (2 occurrences).

Changed "ring "true"" to ""ring true" in the last sentence.

Introduction, second to last paragraph

Changed "geometry" to "geometry that helps us find as well as solve problems in living well" in the third sentence.

Chapter 1, *The Wisdom of Effectiveness*, second to last paragraph

Changed "making" to "making and assembling" in the fourth sentence.

Chapter 1, The Wisdom of Wisdom, second paragraph

Changed "ethics in the foundations of" to "playing basketball in" in the fourth sentence.

Chapter 1, *Seeing Through Apparent Miracles*, second paragraph

Changed "In his novel *Flatland: A Romance of Many Dimensions*" to "The Victorian novel *Flatland: A Romance of Many Dimensions* can provide us with insight into the cause of these apparent paradoxes. In this novel" in the first sentence.

Changed "In making this journey" to "By seeing the plane of *Flatland* from above" in the new third sentence.

Changed "travelled" to "went" in the new fourth sentence.

Chapter 1, *Seeing Through Apparent Miracles*, third paragraph, first two sentences

"Similarly, Toyota has performed apparent miracles by learning well. Toyota production team members find it impossible to explain their system to people who believe that the terms 'excellence in means' and 'efficiency' refer to the same concept."

were changed to:

"Similarly, Toyota production team members find it impossible to explain their apparent miracles to people who believe that the terms 'excellence in means' and 'efficiency' refer to the same concept."

Chapter 1, *The Truth of Wisdom*, fifth paragraph, footnote

Changed "modern" to "extreme" in the last sentence.

Chapter 2, introduction, last paragraph

Changed "concepts help us to think clearly about" to "views help us to think clearly about what we ought to do, which includes" in the third sentence.

Chapter 2, Trade, last paragraph, first two sentences

"From the temporal view of modern economics, business firms emerge from the high cost of transactions.[3] From the boundless view, structures of commerce emerge from the high fixed cost of trade relations."

were changed to:

"This insight into trade provides us with greater understanding of economic organizations. From the temporal view of modern economics, business firms emerge from means of lowering transaction costs.[3] From the boundless view, economic organizations emerge from means of lowering the cost of starting and stopping low-transaction-cost trade relations."

Chapter 2, *Three Common Mistakes*, last paragraph

Changed "myopic" to "short-sighted" in the second sentence.

Chapter 3, introduction, third paragraph

Changed "an ever more" to "a" in the second sentence.

Chapter 3, Contemplating the Way Forward, all paragraphs

"Deciding well calls for us to contemplate well about deciding well. We can use the concept of a transcendental recursive object to help us to do so.

"To understand the concept of a transcendental recursive object, we need to understand recursive processes, programs, and objects. A *recursive process* is a sequence of steps in which the results of one cycle through the steps becomes the basis for the next cycle. A *recursive program* is a recursive process that contains a step that halts the process when a given condition is true. A *recursive object* is an object that we come to know by means of a recursive program. Consider the problem of dividing a bag of marbles equally among three children. We can solve this simple problem using a recursive program. The steps in this program are removing three marbles from the bag; giving each child a marble; halting if there

are fewer than three marbles in the bag; and repeating the process. In this simple example, the recursive object is the number of marbles each child receives.

"Complete knowledge of some recursive objects will always transcend our knowledge of them. The mathematical constant π, which is the ratio of the circumference to the diameter of a Euclidean circle, is one such object. Many recursive processes will yield ever better approximations of π. We may use any of these processes to create a recursive program for producing ever better approximations of π. We may call the ever better approximations of π the *timeless end* of this program and complete knowledge of π the *transcendental end* of this program.

"Wisdom, which is the knowledge that allows a being to decide perfectly, is another transcendental recursive object. Many recursive processes for deciding well will yield ever better approximates of Wisdom. We may use any of these processes to create a recursive program for producing ever better approximates of Wisdom. We may call the ever better approximates of Wisdom the *timeless end* of this program and complete knowledge of Wisdom the *transcendental end* of this program."

were changed to:

"Contemplating well about deciding well calls for us to understand recursive processes and ends. A *recursive process* is a sequence of steps in which the results of one cycle through the steps becomes the basis for the next cycle. A *recursive end* is the end we seek by means of a recursive process.

"Recursive ends may be temporal. Consider the temporal end of dividing a bag of marbles equally among three children. We can solve this simple problem using a recursive process that halts when it achieves the temporal end of each child having an equal share of the marbles in the bag. The steps in this process are removing three marbles from the bag, giving each child a marble, halting if there are fewer than three marbles left in the bag, and repeating the process. The end of this recursive process is each child receiving an equal share of the marbles in the bag.

"Recursive ends may also be timeless. Consider the timeless end of calculating the value of π, the ratio of the circumference to the diameter of a Euclidian circle. Many different recursive processes will yield ever better approximations of π. The best are those that converge on π using the least valuable non-knowledge resources. Similarly, many recursive processes will yield ever better approximations of Wisdom, the timeless end of deciding well. The best are those that converge on Wisdom using the least valuable non-knowledge resources."

Chapter 3, Overcoming Contstraints in Pursuing Wisdom, first paragraph

"The process of computing the value of π differs profoundly from the process of pursuing Wisdom. Nevertheless, we can draw some conclusions about overcoming constraints in pursuing Wisdom from the much simpler case of overcoming constraints in computing the value of π, the mathematical counterpart to the geometric problem of squaring the circle."

was changed to:

"The process of computing the value of π is much simpler than the process of pursuing Wisdom. Nevertheless, we can draw some conclusions about overcoming constraints in pursuing Wisdom from it."

Chapter 3, Overcoming Contstraints in Pursuing Wisdom, last paragraph, last sentence

"*Deciding well is the boundless means of squaring the circle.*"

was deleted.

Chapter 3, Public Entropy, first paragraph

Changed "transcendental" to "timeless" in all (2 occurrences).

Chapter 6, *Maslow's Spiritual Needs*, last paragraph

Changed "transcendent" to "timeless" in the second to last sentence.

Appendix A, Ideal Forms, last paragraph

Changed "transcendental" to "timeless" in the second to last sentence.

Appendix C, The Problem of Heraclitus, last paragraph, footnote

Changed "circle" to "circle, the geometric equivalent of calculating the value of π" in the first sentence.

Deleted the last sentence: "As we saw in the third chapter, the best means of pursuing this transcendental end is the boundless approach to deciding well."

Changes on 2 November 2016

Appendix A, all

Changed "left-handed" to "closed left-handed" in the all (4 occurrences).

Appendix A, The Big Picture, submitted answer

Simplified the submitted answer by treating circles as polygons with infinite vertices and infinitesmal sides. This called for defining infinity as the number of elements in the set of all real numbers and for noting the treatment of circles in the definitions section.

Changes on 11 November 2016

Introduction, sixth paragraph

Changed "find" to "find what appear to us to be" in the last sentence.

Chapter 1, *The Truth of Wisdom*, second to last paragraph, last sentence

"If they do, we have found a "beautiful" problem to solve."

was deleted.

Appendix A, Ideal Forms, last paragraph, last paragraph

Changed "where deciding well includeds learning to decide ever more wisely" to "(where deciding well includes learning to decide ever more wisely)" in the the last sentence.

Appendix C, A Boundless View of the Whole, last paragraph

Changed "gaze or gesture toward Holy Wisdom" to "gesture toward the symbols of Holy Wisdom and gaze toward the symbol of the Holy Spirit" in the the last sentence.

Appendix C, *The Role of Julius II*, last paragraph

Changed "image" to "symbol" in the the last sentence.

Changes on 28 November 2016

Preface, second paragraph

Changed "(weakly) self-similar relation" to "relation" in the last sentence.

Acknowledgments, second paragraph

Changed "knew" to "believed" in the last sentence.

Chapter 1, *An Infinitely Large Crane*, last paragraph

Changed "religious" to "traditional religious" in the second to last sentence.

Chapter 1, *The Truth of Wisdom*, second to last paragraph, footnote

Changed "living beings" to "beings living in the flow of time" in the last sentence.

Chapter 2, *Consumption*, last paragraph, footnote

Moved footnote about tense change to the end of the (introductory) WEALTH paragraph.

Chapter 2, Trade, last paragraph

Changed "low-transaction cost trade relation" to "relations that lower transaction costs" in the third sentence.

Chapter 2, *Trust*, second paragraph

Changed "knowledge" to "knowledge by lowering the cost of protecting knowledge" in the first sentence.

Chapter 3, introduction, first paragraph, first sentence

"Following the steps for building boundless models, we define the boundless frame for Beauty by defining the process of contemplating well and the boundless end of contemplating well in terms of each other."

was changed to:

"As we saw in the first chapter, pursuing Beauty calls for us to pursue Wisdom, which in turn calls for us to pursue Truth. Similarly, pursuing Wisdom calls for us to pursue Beauty, which in turn calls for us to pursue Truth. In the end, Beauty is Truth, Truth Beauty."

"We define the boundless frame for Beauty by defining the process of contemplating well and the boundless end of contemplating well (Beauty) in terms of each other."

Chapter 3, introduction, new second paragraph

Changed "other boundless factors" to "all other boundless factors" in the last sentence.

Chapter 3, introduction, new third paragraph

Changed "linking" to "relating" in the first sentence.

Chapter 3, introduction, new third paragraph, last sentence

"Learning about classical music may turn Beethoven's symphonies from being overwhelming to being beautiful; it may also change simpler music from being beautiful to being boring."

was deleted.

Chapter 3, introduction, new fourth paragraph, fifth sentence

Inserted a paragraph break.

Chapter 3, *Public Order*, title

Changed title to "*Three Approaches to Public Order*".

Chapter 3, The Elephant in the Room, first paragraph

Changed "*living beings* (beings bound to live well in the flow of time" to "beings bound to live well in the flow of time (*living beings*" in the first sentence.

Chapter 4, introduction, second paragraph

Changed "world" to "(past, present, and all possible future states of the) world" in the first sentence.

Chapter 4, Self-Similarity, last paragraph

Changed "into" to "into, or reinforces this ignorance in" and changed "*languages*" to "*languages cultures*" in the last sentence.

Chapter 4, Recursivity, second paragraph

Changed "speculative" to "simple speculative" in the first sentence.

Chapter 4, Academic Fields, last paragraph

Changed "In the words of Jacob Bronowski, "It is not the business of science to inherit the earth, but" to "This ring trues with Jacob Bronowski's career-culminating claim that the business of science is" in the first sentence.

Chapter 4, Refining Finding Problems to Solve, first paragraph, second sentence

"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."

was deleted.

Chapter 4, Refining Finding Problems to Solve, second paragraph

Changed "into" to "into, or reinforce major mistakes in" in the third sentence.

Chapter 4, Refining Finding Problems to Solve, fifth paragraph

Changed "People" to "Employees" in the seventh sentence.

Chapter 4, Modern Policy Mistakes, fourth paragraph

Italicized "*national income accountants*" and "*national statisticians*" (1 occurrence each).

Chapter 4, Modern Policy Mistakes, fifth paragraph

Changed "perfectly" to "perfectly with respect to this change" in the second sentence.

Chapter 5, The Explicit Experiment, third paragraph

Changed “sovereign-rights” to “Creator-based sovereign-rights” in the first sentence.

Chapter 5, The Explicit Experiment, fourth paragraph

Changed “idealistic sovereign-rights” to “Creator-based” in the first sentence.

Changed “a pragmatic” to “an implicitly evolutionary” in the second sentence.

Deleted the third sentence: “In this story, people trade some sovereign rights for services.”

Chapter 5, The Explicit Experiment, last paragraph

“How do the people of the United States who think deeply about governing well reconcile the idealistic story of the Declaration with the pragmatic story of the Constitution? One popular way is to claim that the Declaration story has become ritual rather than religious through customary use. This denies a source of justice higher than the social contract. Another popular way is to claim that the Declaration story concerns justice and the Constitution story concerns legality. To people who believe that the Declaration story concerns a Creator whose wishes we know by more than studying nature, this affirms a divinely revealed source of justice higher than the social contract. From the boundless view, both of these ways violate the spirit, if not the letter, of the First Amendment. The first way establishes a state religion based on social justice and the second establishes a state religion based on claims of revealed truth about justice. Both have put Franklin’s political experiment in mortal danger by promoting policies that go beyond the natural religion of the Declaration of Independence. In 1920, true believers in divinely revealed truth about justice passed an amendment that took away the freedom to make, sell, and transport alcoholic beverages. Disregard for this law led to widespread government corruption. Voters repealed this amendment in 1933. This was in time to prevent the entire country from following big cities into gangland chaos at a critical point in world history. Also in 1933, true believers in social justice passed the National Industrial Recovery Act. This act put many of the most basic economic decisions in the hands of government bureaucrats and industrial boards. In 1935, the Supreme court struck down Title I of this act (A. L. A. Schechter Poultry Corporation v. United States, 295 U. S. 495), thereby preventing the United States from following Italy and Germany into national socialism.”

was changed to:

"How do the people of the United States who think deeply about governing well reconcile the Declaration story with the Constitution story? One popular way is to claim that the Declaration story concerns a source of justice known to us by more than studying nature and that the Constitution story concerns legality. Another popular way is to claim that the Declaration story has become ritual rather than religious through customary use. This effectively denies a source of justice higher than the social contract.

"From the boundless view, both of these ways violate the spirit, if not the letter, of the First Amendment. The first way establishes a state religion based on claims of revealed truth about justice and the second establishes a state religion based on social justice. Both have put Franklin's political experiment in mortal danger: In 1920, true believers in divinely revealed truth about justice passed an amendment that took away the freedom to make, sell, and transport alcoholic beverages. Disregard for this law led to widespread government corruption. Voters repealed this amendment in 1933. This was in time to prevent the entire country from following big cities into gangland chaos at a critical point in world history. In 1933, true believers in social justice passed the National Industrial Recovery Act. This act put many of the most basic economic decisions in the hands of government bureaucrats and industrial boards. In 1935, the Supreme court struck down Title I of this act (A. L. A. Schechter Poultry Corporation v. United States, 295 U. S. 495), thereby preventing the United States from following Italy and Germany into national socialism."

Chapter 5, A Sovereign Story of Deciding Well, fourth paragraph

Changed "see in this sovereign story" to "find in this sovereign story confirmation of" in the first sentence.

Chapter 5, *Judge Interventions*, last paragraph

Changed "inevitably leads" to "leads" and "profitable" to "wise" in the last sentence.

Chapter 5, *Promote Savings for Welfare*, first paragraph

Changed "concerns" to "is" in the last two sentences (2 occurences).

Chapter 5, *Promote Savings for Welfare*, second paragraph

Changed "of" to "dedicated to pursuing" in the fourth sentence.

Changed "creating" to "running" in the last sentence.

Chapter 7, The Scope of Game Theory, second paragraph

Changed "in this one-time offer is how these twenty experts see it" to "how these twenty experts perceive this one-time collective game" in the first sentence.

Changed "tells" to "calls for" in the first sentence.

Changed "is" to calls" in the last sentence.

Chapter 7, *A Normal Anomaly*, second paragraph

Changed "1949" to "famous 1949" in the first sentence.

Chapter 7, *OODA Loop Analysis*, second paragraph, first four sentences

"Boyd first used his OODA loop model to solve a temporal problem. According to E–M theory, F-86 pilots should not have been as successful against MiG-15 pilots as they were. Boyd used his OODA loop model to look deeper. He concluded that F-86 pilots were able to overcome the E–M weaknesses of their airplanes by using knowledge that allowed them to decide faster than their opponents."

was changed to:

"Boyd first used his OODA loop model to address the temporal problem of why F-86 pilots were as successful against MiG-15 pilots as they were. He concluded that they were able to overcome the E–M weaknesses of their airplanes by using knowledge that allowed them to decide faster than their opponents."

Chapter 7, *OODA Loop Analysis*, third paragraph and the first part of the fourth paragraph

"Boyd later used his OODA loop model to address the problem of living well. He did so by defining "winning" to be improving our fitness, as an organic whole, to shape and cope with an ever-changing environment. He also added a learning function to the orientation step of his decision loop."

"Boyd recognized that competing well created different types of problems at different problem scales. He listed these types of problems in slide #141 of his *Patterns of Conflict* briefing:"

"Pattern"

were changed to:

"Boyd later used his OODA loop model to address the timeless problem of living well by adding a learning function to the orientation step of his decision loop. He also recognized that competing well created different types of problems at different problem scales:"

Chapter 7, *OODA Loop Analysis*, first paragraph

Changed "pattern" to "hierarchical pattern" in the first sentence.

Chapter 7, *Boyd's Grand Strategy*, first paragraph

Changed "a grand strategy based" to "basing grand strategy" and "we" to "members of our nation" in the first sentence.

Changed "prescription" to "prescription for winning" in the last sentence.

Chapter 7, *Boyd's Grand Strategy*, last paragraph

Changed "Boyd" to "Regrettably, Boyd" in the first sentence.

Changed "From a boundless view, nationalism bounds Boyd's" to "Nationalism" bounds this" in the last sentence.

Chapter 7, The Scope of Biological Evolution, second paragraph

Changed "seek" to "who always seek" in the first sentence.

Chapter 7, The Scope of Biological Evolution, second paragraph, end

Inserted the following sentence: "This rings true with Lynn Margulis's claim that the modern synthesis of Darwinian natural selection and genetics underestimates the importance of cooperation in biological evolution."

Chapter 8, Proving Boundless Reason, third paragraph

Changed "into" to "into, or reinforcing mistakes in" in the seventh sentence.

Chapter 8, Eudaemonia, title

Changed title to "Governing Our Minds Well".

Appendix A, introduction, third to last paragraph

Changed “foundations” to “natural foundations” in the last sentence.

Appendix A, introduction, second to last paragraph, footnote

Changed “foundations” to “natural foundations” in the last sentence.

Appendix A, The Big Picture, answer blockquotes

Changed hyphens to minus signs in the polygon sequences.

Changed circle sequence by not reducing the removal of sides from the sides in a circle (infinity) to infinity for the benefit of people who are not familiar with the mathematics of infinity.

Appendix A, Ideal Forms, first paragraph

Expanded sequences to match printed version, which had a spacing problem.

Appendix B, *Folding In Processes*, second paragraph

Changed “is the operation” to “the operation is” in the last sentence.

Appendix B, *Smoothing Flows*, last paragraph

Changed “parts of the line or removing resources from the process” to “major parts of the line” in the first sentence.

Changed “than the smooth flow that results from this process” to “than its results” in the last sentence.

Appendix B, Temporal Details, first paragraph

“Toyota teams learn to produce well, which is to say ever more leanly, by folding and smoothing. This section describes some of the details of this process as they were in the early 1980s.”

were changed to:

“This section describes some of the details of the Toyota production system as it was in the early 1980s.”

Appendix B, *Machine Tools*, second paragraph, fourth and fifth sentences

"The goal is *wise* (ever more efficient and effective) production. Toyota production teams take a boundless view of automation."

were changed to:

"The goal is *wise* production."

Changes on 20 March 2017

Chapter 1, Choosing Frames Well, first paragraph

Changed "plan" to "plan, perform," in the first sentence.

Chapter 8, introduction, second paragraph

Changed "planning" to "planning, performing," in the first sentence.

Appendi C, The Role of Octagons, first paragraph

Changed "Here" to "In this room" in the last sentence.

Appendix C, Black Clouds in Theology, fifth paragraph

Changed "Celestial" to "These celestial" in the last sentence.

Appendix C, Black Clouds in Theology, last paragraph, last sentence

"Celestial beings of our world appear to be part of the white aether and the celestial beings beyond our world appear to be part of the golden aether."

was changed to:

"Celestial beings surrounding Christ appear to be part of the white clouds surrounding Christ and the celestial beings surrounding God appear to be part of the golden emanations of God."

Appendix C, *The Role of Julius II*, fourth paragraph, last sentence

"In contrast, putting it either at the apex of this arch or above the oculus would have him become ever more Christlike."

was changed to:

"Putting it on to the right of the apex of this arch would have him err on the side of theology. Putting it at the apex would have him become ever more Christlike."

Appendix C, *The Role of Julius II*, fifth paragraph

Changed "rather than" to "but not" in the first sentence.

Changes on 25 March 2017

Preface, second paragraph

Changed "waste" to ""wasted" non-knowledge resources" in the third sentence.

Preface, fourth paragraph

Changed "Boundless" to ""Boundless"" in the fourth sentence.

Introduction, second to last paragraph

Changed "John" to "game theory pioneer John" in the last sentence.

Chapter 1, *Seeing Through Apparent Miracles*, second paragraph

Changed "Lacking the concepts" to "Lacking the concepts that" in the fifth sentence.

Chapter 1, *Seeing Through Apparent Miracles*, third paragraph

Changed "Lacking the concepts" to "Lacking the concepts that" in the second sentence.

Chapter 1, *An Infinitely Large Crane*, last paragraph

Changed "*Idea*" to "*Idea: Evolution and the Meanings of Life*" in the first sentence.

Changed “the boundless” to “this” in the third sentence.

Changed “this approach” to “this” in the fourth sentence.

Chapters 2-7, (Abridged Version explanation page), title quotes

Added the title quote:

““It would truly be a miracle if this (I would like to say rabid) development [of modern science] had not also begun to make itself felt in the conception of mathematics. Actually, mathematics, by its nature as an *a priori* science, always has, in and of itself, an inclination toward the right [idealism] . . . Indeed, mathematics has evolved into ever higher abstractions, away from matter and to ever greater clarity in its foundations (e.g., by giving an exact foundation of the infinitesimal calculus and the complex numbers)—thus, away from scepticism.”—*Kurt Gödel*[2]”

“[2] Gödel, Kurt, “The Modern Development of the Foundations of Mathematics in Light of Philosophy,” *Collected Works, Volume III: Unpublished Essays and Lectures* (New York: Oxford University Press, 1995), p. 377.”

Chapter 3, introduction, first paragraph

Changed “pursue Wisdom” to “decide well” in all (2 occurrences).

Chapter 3, *Overcoming Constraints in Deciding Well,* last paragraph, last sentence

“We best address the problem of computing π well by pursuing the boundless end of deciding well.”

was changed to:

“We best pursue the *timeless end* of computing π well by pursuing the *boundless end* of deciding well.”

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, eighth paragraph, footnote, first three sentences

“Decision-tree models consist of events that change the course of events that the decider controls (decision events), and events that change the course of events that the decider does not control (uncertain events). At zero public entropy, the

universal decision-tree model is comprehensible. As entropy rises, it becomes less so."

was changed to:

"Decision-tree models consist of representations of events that change the course of events that the decider controls and those that the decider does not control. Given the perfect flow of knowledge useful in living well, there is one decider, the public. As entropy rises, this symmetry breaks."

Chapter 4, introduction, last paragraph

Changed "within" to "from within" in the seventh sentence.

Chapter 4, introduction, last paragraph, last sentence

"In doing so, we see beyond what theoretical biologist Stuart Kauffman calls the adjacent possible."

was changed to:

"In explaining the world, we ought to look to what we need to adapt to what we cannot predict."

Chapter 4, *Self-Similarity*, entire subsection

"The distinction between efficiency and effectiveness depends on the scale of the problem we choose. We may call this self-similarity weak in that there is no simple rule for how to break down problems into smaller problems. For example, we do not always break down problems into problems one-fifth their size.

"When we choose a problem to solve, we choose to accept our current ignorance of causation on the level of our chosen problem and on all higher levels. *When we address this problem, we embed this ignorance into, or reinforce this ignorance in, our networks of knowledge-in-use, into our markets, technologies, legal systems, languages, cultures, and characters.*"

was changed to:

"When we choose a problem to solve we also choose the scale of this problem. Regardless of what scale we choose, the formal three-step process of deciding well remains the same. When we choose a problem, we also choose to accept our current ignorance on the level of this problem and on all higher levels. *When we*

address this problem, we embed this ignorance into, or reinforce this ignorance in, our networks of knowledge-in-use, which is to say into our markets, technologies, legal systems, languages, cultures, and characters. Regardless of what we choose, we embed less than ideal knowledge into our networks of knowledge in use."

Chapter 4, *Recursivity*, second paragraph

Changed "about" to "of" in the second sentence.

Chapter 4, *Recursivity*, last paragraph, last sentence

"*As people, we ought to explain the world in ways most useful to people in deciding well, which are those that ring truest with all that we currently know about deciding well.*"

was changed to:

"*In theory, we ought to explain the world in ways most useful to people in deciding well. In practice, these ways are those that ring truest with all that we currently know about deciding well.*"

Chapter 4, *Academic Fields*, fourth paragraph

Changed "human cultural evolution" to "the cultural evolution of people" in the last sentence.

Chapter 4, Refining Everyday Thinking, first two paragraphs

"From the boundless view, we refine the process of refining everyday thinking by applying this process to itself. This calls for refining the models we use to help us predict how people will decide. We refine these models by weeding out all models that are not clear, concise, and logically consistent. We further refine this set by weeding out models that fail to meet our current standards for helping us predict what will happen. What remains is a set of refined models that we use to predict how people will decide.

"Refining the process of refining everyday thinking also calls for refining the faceted model of deciding well that we use to find problems to solve. We refine these models by weeding out all frames/facets that are not clear, concise, and logically consistent. We further refine these models by weeding out frames/facets that fail to meet our current standards for helping us find problems to solve. The rub is that we do not know exactly what it is that we ought to seek"

were changed to:

"From the boundless view, we refine the process of believing well by refining the models we use to help us predict and explain the world. We refine models that we use to predict well by weeding out those that are not clear, concise, and logically consistent. We further refine them by weeding out those that fail to meet our current standards for helping us predict what will happen. What remains is a set of refined models that we use to predict the world.

"In theory, we refine the faceted models of deciding well that we use to find problems to solve by weeding out all frames/facets that are not clear, concise, and logically consistent. We further refine these models by weeding out frames/facets that fail to meet our current standards for helping us find problems to solve. The rub is that we do not know exactly what it is that we ought to seek."

Chapter 4, *Refining Finding Problems to Solve*, first paragraph, first sentence

"From the boundless view, we ought to seek what we need to decide well."

was deleted.

Chapter 4, *Modern Policy Mistakes*, third paragraph, last sentence

"The solution to our modern economic accounting problems will be similar to the solution to the Soviet accounting problems: We will replace our decision-making system with one that depends less on problematic measurements."

was changed to:

"The solution to these accounting problems will be the same as the solution to the Soviet accounting problems, replacing a flawed decision-making system with one that depends less on problematic measurements."

Chapter 4, *Modern Policy Mistakes*, fourth paragraph

"From the modern economic view, the problem of measuring the value of services is limited; the problem of measuring the value of changes in quality is manageable; and national income accountants ought to gather information useful in helping people satisfy their current wants. From the boundless view, the problem of measuring the value of services is universal; the problem of measuring the value of changes in quality is very hard; and national statisticians ought to gather information useful in helping people live ever more wisely."

was changed to:

"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. From the boundless view, the problem of measuring the value of services is universal and the problem of measuring the value of changes in quality is very hard."

Chapter 4, *Modern Policy Mistakes*, sixth paragraph, first sentence

"Given the weak self-similarity of deciding well, we may hypothesize that these networks are weakly fractal."

was changed to:

"Given the self-similarity and self-reference of deciding well, we may speculate that these networks are at least weakly fractal."

Chapter 5, *Judge Interventions*, second paragraph

Changed "prohibit intoxicating liquors" to "outlaw alcoholic beverages" in the third sentence.

Chapter 5, *Promote Savings for Welfare*, last paragraph

Changed ", which" to ". This sector" in the last sentence.

Chapter 6, *Maslow's Spiritual Needs*, second paragraph

Changed "fall" to "naturally fall" in the first sentence.

Chapter 6, *Schweitzer's Mystical Oneness*, sixth paragraph, first sentence

"In response to suffering, ethical mysticism evokes sympathy; magical mysticism evokes detachment."

was italicized.

Chapter 6, *Worldly Benefits of Detachment*, last paragraph

Changed "stream of consciousness" to "stream" in the second to last sentence.

Chapter 6, *Heroic Death*, first paragraph

Changed “heroic act” to “heroic act of self-sacrifice” in the first sentence.

Chapter 6, *Heroic Death*, second paragraph

Changed “foolishly” to “without considering whether such a death is wise” in the second sentence.

Changed “others” to “the greater good” in the fifth sentence.

Chapter 7, The Scope of Game Theory, second paragraph, second through last sentences

“Would they see it as playing nineteen two-player games or as a single game consisting of nineteen two-player games? If the former, modern game theory calls for them to defect. (Regardless of what the opposing player does, the deciding player is better off by defecting.) If the latter, the best solution calls for everyone to cooperate.”

were changed to:

“If they believed others would see it from the view of modern game theory, they would defect. If instead they believed that others would see it as something that went beyond modern game theory, they would cooperate.”

Chapter 7, *A Normal Anamoly*, second paragraph

Changed “Martin” to “Former “Mathematical Games” columnist Martin” in the seventh sentence.

Chapter 7, *A Normal Anamoly*, last paragraph

Changed “recurring” to “identical recurring” in the fifth sentence.

Changed “recurring” to “” in the sixth sentence.

Chapter 7, *E–M Theory*, first paragraph

Changed “became” to “eventually became” in the fourth sentence.

Chapter 7, *OODA Loop Analysis*, first paragraph

Changed “based on” to “based on a recurring sequence of steps,” in the first sentence.

Changed “decision cycle” to “cycle” in the last sentence.

Chapter 7, *Boyd’s Grand Strategy*, last paragraph

Changed “this” to “his” in the last sentence.

Chapter 8, Proving Boundless Reason, third paragraph

Changed “weakly self-similar” to “self-similar” in the seventh sentence.

Appendix A, Ideal Forms, last paragraph, footnote, last four sentences

“He claimed that there were more fruitful blends or combinations of empiricism and idealism than those that ring true with modern Zeitgeists. The solution he proposed was to refine the intuition we need to discover fruitful axioms. His belief that the reason of mathematics includes intuition led him to try to prove this belief formally. The boundlessly reasonable alternative to this impossible task is to try to disprove empirically the usefulness in living well of the beauty that emerges from removing waste from the process of deciding well (where deciding well includes learning to decide ever more wisely).”

were changed to:

“He claimed that there were more fruitful blends or combinations of empiricism and idealism than those that ring true with modern worldviews. His belief that the reason underlying mathematics includes the intuition needed to discover fruitful axioms led him to try to prove this belief formally. The boundlessly reasonable alternative to this impossible task is to try to disprove empirically the usefulness in living well of the beauty that emerges from removing waste from the process of deciding well. *The most important part of intuition is a sense of beauty, of what rings true with deciding well.*”

Appendix B, introduction, first paragraph

Changed “creating” to “producing” in the first sentence.

Changed “complex system” to “complex production system” in the second sentence.

Appendix B, *Folding in Processes*, first paragraph

Changed "Production systems are networks of production processes" to "Manufacturing production systems are networks of transformation processes" in the first sentence.

Changed "assembly" to "assembling" in the first sentence.

Appendix B, *Folding in Processes*, fourth paragraph

Changed "production" to "transformation" in the third sentence.

Appendix B, *Folding in Processes*, fifth paragraph

Changed "production systems" to "manufacturing production systems" in the first sentence.

Appendix B, *Folding in Processes*, eighth paragraph

Changed "processes" to "systems" in the first sentence.

Appendix B, *Machine Tools*, first paragraph

Changed "fool proofing" to "mistake-proofing" in the last sentence.

Appendix B, *Machine Tools*, fifth paragraph, first through fourth sentence

"Another way of building quality into a production process is to make modifications that prevent human errors. The Japanese call this "fool proofing" (baka-yoke). Like most autonomation devices, most fool-proofing ones are simple and cheap. For example, a packaging line may use a fool-proofing device that ensures that the team member has packed the correct number of large parts."

were changed to:

"Another way of building quality into a production system is to make modifications that prevent human errors. In the 1980s, the Japanese called this "fool-proofing" (baka-yoke). They now call it "mistake-proofing" (poka-yoke). Like most autonomation devices, most mistake-proofing ones are simple and cheap. For example, a packaging line may use a device that ensures that the team member has packed the correct number of large parts."

Appendix B, *Machine Tools*, last paragraph

Changed "fool-proofing" to "mistake-proofing" in the last sentence.

Appendix B, *Production Links*, first paragraph

Changed "production" to "transformation" in the first sentence.

Changes on 14 April 2017

Chapter 4, title quotes

Added the title quote:

""It would truly be a miracle if this (I would like to say rabid) development [of modern science] had not also begun to make itself felt in the conception of mathematics. Actually, mathematics, by its nature as an *a priori* science, always has, in and of itself, an inclination toward the right [idealism] . . . Indeed, mathematics has evolved into ever higher abstractions, away from matter and to ever greater clarity in its foundations (e.g., by giving an exact foundation of the infinitesimal calculus and the complex numbers)—thus, away from scepticism."—*Kurt Gödel*"

"Gödel, Kurt, "The Modern Development of the Foundations of Mathematics in Light of Philosophy," *Collected Works, Volume III: Unpublished Essays and Lectures* (New York: Oxford University Press, 1995), p. 377."

Appendix A, introduction, eighth paragraph

Changed "line segment" to "vertical line segment that closes the figure" in the last sentence.

Appendix C, A Boundless View of the Whole, fourth paragraph

Changed "ceiling" to "ceiling and walls" in the second sentence.

Appendix C, *The Role of Julius II*, last paragraph

Changed "to become an ever-wiser jurist but not" to "not to become" in the first sentence.

Changes on 25 April 2017

Entire book

Checked all external HTML links for breaks. Changed reference dates from 10 September 2016 to 25 April 2017.

Acknowledgments, last paragraph

Changed ", where I met three seekers of larger truths." to ". There I met three seekers of larger truths:" in the sixth sentence.

Introduction, fourth paragraph

Changed "deciding well" to "deciding well (in the pursuit of living well)" in the second to last sentence.

Chapter 1, *An Infinitly Large Crane*, fourth paragraph

Changed "divinities or divinities" to "divine being or beings" in the last sentence.

Chapter 4 (full version) and 2-7 (abridged versions), second title quote

Changed "the right [idealism]" to "[idealism]" in the second sentence. Note that this direction comes from the metaphor that Gödel used in describing his spectrum of worldviews. It does not refer to the right-left political spectrum that first arose during the French Revolution.

Changed "scepticism" to "skepticism" in the last sentence. Note that the British spelling accurately records the English translation in this OUP collection but that it clashes with the American spelling throughout the rest of this work.

Chapter 8, introduction, second paragraph

Changed "performing, and learning from actions" to "acting, and learning from experience" in the first sentence.

Chapter 8, introduction, fourth paragraph, last two sentences

"When they pursue temporal ends, they seek to solve temporal problems well. We may call the rules that they use to relate beliefs well in solving temporal problems well *rules of logic* after the rules of reason that Aristotle used to relate beliefs."

were changed to:

"When they pursue ends based solely on what they currently know, they seek to solve temporally-defined problems well. We may call the rules that they use *rules of logic* after the rules of reason that Aristotle used to relate beliefs."

Note that this change corrects the type of mistake that made editting this work so difficult. As Thomas Kuhn famously noted, communication across paradigms is only partial. From the boundless view, temporal problems include both problems with temporal ends and temporally-defined problems. From modern views, they only include the former. Beauty (in the form of clarity and conciseness) differs with context. Here, the context concerns both types of worldviews.

Changes on 15 May 2017

Chapter 1, *The Wisdom of Effectiveness*, last paragraph

Changed "are able to" to "can" in the third sentence.

Chapter 3, *A Boundless View of Quantum Mechanics*, fourth paragraph, last sentence

"Following this line of thinking, we do not have free will.[4]"

"[4] From the boundless view, the existence of free will rings truer with all that we currently know about deciding well than the non-existence of free will rings. Hence, we ought to seek to disprove that free will exists by acting as if it exists."

was deleted.

Chapter 3, *A Boundless View of Quantum Mechanics*, fifth paragraph

Changed "actually happened" to "happened" in the last sentence.

Chapter 3, *A Boundless View of Quantum Mechanics*, seventh paragraph

Changed "The process of learning to work together ever more wisely " to "This process" in the second sentence.

Changed "transitions" to "thermodynamic phase transitions" in the last sentence.

Chapter 3, *A Boundless View of Quantum Mechanics*, eighth paragraph

Changed “class” to “class of interpretations of quantum mechanics” in the first sentence.

Chapter 3, *A Boundless View of Quantum Mechanics*, ninth paragraph

Changed “*at this time*” to “*now*” in the third sentence.

Chapter 3, The Elephant in the Room, first paragraph

Italicized “*as a whole*” in the second sentence.

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

Added the footnote:

“[8] A prime example of the foolishness of ignoring this wisdom is belief in Laplacian determinism. From the top-down view of the science of deciding well, we must choose between testing empirically whether free will exists or does not exist. The more beautiful problem to solve is testing whether free will exists, which calls for us to act as if free will exists. It rings truer with all that we currently know about deciding well in the pursuit of living well.”

Chapter 4, *Academic Fields*, second paragraph

Changed “are able to” to “can” in the second sentence.

Chapter 4, Testing the Boundless Approach, first paragraph

Changed “beliefs as a whole” to “beliefs” in the last sentence.

Appendix A, introduction, second paragraph

Changed “actually has” to “has” in the second sentence.

Appendix A, introduction, third paragraph

Changed “Both of these” to “Both” in the second to last sentence.

Appendix B, *Machine Tools*, third paragraph

Changed “particular type of” to “given” in the second sentence.

Appendix C, A Boundless View of the Whole, first paragraph

Changed “this room as a whole,” to “the decoration of this room,” in the first sentence.

Appendix C, A Boundless View of the Whole, third paragraph

Changed “rationality” to “completeness” and “temporal” to “rational (logical)” in the third sentence.

Changes on 4 July 2017

Entire book

Changed “Renaissance Art” to “Renascent Art” in all (4 occurrences).

Introduction, second paragraph

Changed “rules” to “decision rules” in the second sentence.

Chapter 1, Choosing Frames Well, last paragraph, fifth sentence

Inserted the sentence:

“To choose this frame, we must choose a frame from within which to choose.”

Chapter 1, *The Wisdom of Effectiveness*, second paragraph

Changed “terms that refer to more than one concept, pairs of concepts defined in terms of each other,” to “concepts represented by more than one term, terms that represent more than one concept,” in the third sentence.

Chapter 1, *The Truth of Wisdom*, sixth paragraph

Added another repetition of the phrase “which in turn calls for us to choose a frame,” to the fourth sentence.

Chapter 8, Conclusion, first paragraph

Changed “The whole of science is” to “Given the inexhaustibility of knowledge and the need for people to live well, the whole of science is naturally” in the first sentence.

Changed “science” to “this natural form of science” in the second sentence.

Preface to Appendices

Changed “renaissance” to “renascence” in all (1 occurrence).

Appendix C

Changed “renaissance” to “renascence” in all (2 occurrences).

Appendix C, The Problem of Heraclitus, last paragraph

Changed “relates to” to “represents” in second sentence (2 occurrences).

Changes on 20 July 2017

Entire book

Checked all Internet references. Updated last reference dates.

Preface, second paragraph

Changed “deciding well” to “deciding well (in the pursuit of living well)” in the first sentence.

Preface, fourth paragraph

Changed ““Boundless”” to “This boundless form of” in the fifth sentence.

Changed “boundless reason” to ““boundless reason”” in the last sentence.

Introduction, fourth paragraph

Changed “(in the pursuit of living well).” to “.” in the third sentence.

Introduction, sixth paragraph, last two sentences

“We can use these relations to build faceted models of deciding well in which each facet contains a description of the pursuit of a boundless factor of deciding well. We can then use these models to help us find what appear to us to be “beautiful”

problems to solve, problems that "ring true" with all that we currently know about deciding well."

were changed to:"

"We can use these relations to build belief system structures for finding "beautiful" problems to solve, problems that "ring true" with all that we currently know about deciding well."

Introduction, last paragraph, first two sentences

"The boundless approach to deciding well calls for changing the meaning of some familiar terms and phrases. To make this difficult task a bit easier, I italicized the first instance of terms and phrases with unfamiliar meanings."

were changed to:"

"This boundless form of reason allows us to apply the process of deciding well to itself without creating contradictions. This in turn allows us to change what Albert Einstein called "the whole of science" from the products to the process of refining everyday thinking. In his book, *The Structure of Scientific Revolutions*, Thomas Kuhn claimed that science is subject to periodic revolutions, which we may think of as transformations of world views. Kuhn likened these "paradigm shifts" to seeing the rabbit rather than the duck in a drawing in which it is possible to see either the duck or the rabbit but not both at the same time. Changing our concept of the whole of science to the process of refining everyday thinking is no ordinary paradigm shift. It calls for training ourselves to assemble the pursuits of boundless factors of deciding well into a whole. We may liken this to seeing the three-dimensional image in an autostereogram (e.g., a "Magic Eye" illusion). Seeing these images calls for training ourselves to assemble two-dimensional facets into three-dimensional wholes."

"Understanding this boundless form of reason calls for changing the meaning of some familiar terms and phrases. To make this a bit easier, I italicized the first instance of terms and phrases with unfamiliar meanings."

Chapter 1, *Seeing Through Apparent Miracles*, first paragraph

Changed "is more costly" to "costs more" in the fourth sentence of the first bullet point.

Changed "doing so" to "good quality" in the last sentence of the first bullet point.

Changed "doing so costs" to "small batches cost" in the last sentence of the second bullet point.

Changed "is more costly" to "cost more" in the second sentence of the third bullet point.

Chapter 1, *Seeing Through Apparent Miracles*, second paragraph

Changed "fellow Flatlanders" to "peers" in the fourth sentence.

Chapter 1, *An Infinitely Large Crane*, last paragraph

Changed "approach" to "approach to deciding well " and "in order to" to "to" in the third sentence.

Chapter 1, *The Truth of Wisdom*, second paragraph

Changed "all of" to "all" in the fourth sentence.

Chapter 2, *Pleasure and Pain*, sixth paragraph

Changed "end in itself" to "end" in the second sentence.

Chapter 2, *Pleasure and Pain*, seventh paragraph

Changed "end in itself" to "end" in the seventh sentence.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, last paragraph

"From the boundless view, we relate the strange behaviors of objects on the quantum level to everything we currently know about deciding well. As we shall see in the next chapter, this rings true with Einstein's call for physicists to think critically about not only physics but also everyday thinking."

was appended to the end of the last paragraph in the next section and changed to:"

"We relate the strange behaviors of objects on the quantum level to everything we currently know about deciding well. As we shall see in the next chapter, this rings true with Einstein's call for physicists to think critically about not only physics but also everyday thinking."

Chapter 5, introduction, second paragraph

Changed “particular right” to “right” in the first sentence.

Chapter 5, The Explicit Experiment, sixth paragraph

Changed “both of these” to “both” in the first sentence.

Chapter 5, A Sovereign Story for Deciding Well, last paragraph

Changed “are able to” to “can” in the first sentence.

Chapter 5, Liberalism, first paragraph

Changed “In the midst of” to “During” in the fourth sentence.

Chapter 6, *Pursuing Eternal Oneness*, first paragraph

Changed “in order to” to “to” in the first sentence.

Chapter 6, A Common Boundless End, both paragraphs

Changed “in order to” to “to” in all (four occurrences).

Chapter 7, *OODA Loop Analysis*, third paragraph

Changed “different types of” to “various” in the second sentence.

Chapter 8, Governing Our Minds Well, fourth paragraph

Changed “different ” to “various” in the second sentence.

Chapter 8, Governing Our Minds Well, sixth paragraph

“People who find the third maxim confusing may find understanding in the sad ends of Georg Cantor and Kurt Gödel. Both found open-ended problems that they believed they could solve. Once they had pledged to solve these tantalizing problems, daemons they believed to be truly good would not let them give up. Cantor died in an asylum. Gödel starved himself to death.”

was appended to the footnote of the preceding paragraph and changed to:”

“Extroverts who find the third maxim confusing may find understanding in the eleventh chapter of Jacob Bronowski's book, *The Ascent of Man*, in which he uses Auschwitz and Nagasaki to highlight the perils of having too much faith in

our beliefs. Introverts may find it in the sad ends of Georg Cantor and Kurt Gödel. Both found open-ended problems that they believed they could solve. Once they had pledged to solve these tantalizing problems, daemons they believed to be truly good would not let them give up. Cantor died in an asylum. Gödel starved himself to death."

Chapter 8, Governing Our Minds Well, last paragraph, first two sentences

"From the boundless view, opening ever more of our unconscious minds to consciousness is not an end in itself. It is rather a means of refining our knowledge of deciding well."

were changed to:"

"From the boundless view, opening ever more of our unconscious minds to consciousness is a means of refining our knowledge of deciding well."

Appendix A, introduction, second to last paragraph

Changed "large number" to "very large number" in the second sentence.

Appendix A, Ideal Forms, last paragraph, footnote

Changed "*deciding well*" to "*the pursuit of the boundless end of deciding well*" in the last sentence.

Appendix B, *Smoothing Flows*, second paragraph

Changed "similar to" to "like" in the second sentence.

Appendix B, *Smoothing Flows*, third paragraph

Changed "similar to" to "like" in the second sentence.

Appendix B, Less is More, first paragraph

Changed "in order to" to "to" in the second sentence.

Changes on 11 September 2017

Entire document

Checked all web references and updated their dates.

Preface, second paragraph

Removed parentheses from "in the pursuit of living well" in the first sentence.

Changed "beauty" to "natural beauty" in the fourth sentence.

Introduction, third paragraph, second and third to last sentences

"Deciding well, so conceived, is an economic process, a process subject to constraints. Overcoming constraints in finding problems to solve helps us become ever more effective in pursuing the ideals we currently value; overcoming constraints in solving given problems helps us become ever more efficient in solving given problems; and overcoming constraints in learning from experience helps us become ever wiser."

to:

"So conceived, deciding well is an economic process, a process subject to constraints. Scarcity hinders us not only from solving given problems but also from finding better problems to solve and from learning from experience."

Introduction, fourth paragraph

Changed "take action" to "act" in the last sentence.

Introduction, seventh paragraph

Deleted "apply the process of deciding well to itself without creating contradictions. This in turn allows us to" in the first two sentences.

Inserted the following sentence after the new first sentence: "However, there is a catch."

Changed ""Magic Eye" illusion" to "*Magic Eye* picture" in the seventh sentence.

Changed "comprehending the grand strategy for deciding well in the pursuit of living well" to "making sense of this grand strategy" in the second to last sentence.

Changed ""see" this strategy as a whole" to "making complete sense of this strategy" in the last sentence.

Deleted "as a whole" from the last sentence.

Introduction, eighth paragraph

Inserted the following sentences after the first sentence followed by a page break: "*Timeless relations define this strategy. Temporally defined or constructed details only serve to help people make sense of it.* In this, they are like the details in compendious drawings of Mount Fuji. Bold strokes define the scene. Details help us to make sense of it."

Changed the last two sentences:

"The first chapter, "Deciding Well," explains why making the most of what we currently know calls for us to use this complex approach to deciding well. The remaining chapters describe pursuits of boundless factors of deciding well, each of which forms a facet in the complex model of deciding well put forth in this work."

to:

"The first chapter, "Deciding Well," explains why we owe it to ourselves to use this grand strategy. The second, "Living Well," provides boundless compliments to the modern economic concepts of wealth, consumption, trade, production, taxation, and profit. It ends with an information-age analogue of Adam Smith's virtuous circle of the division of labor and the expansion of market size."

Introduction, new tenth through fourteenth paragraphs

""Contemplating Well" explores the role of beauty in deciding well. The key to understanding this role is a new concept of excellence in means, a concept that calls for removing ever more waste from the process of deciding well."

""Believing Well" outlines the process of refining everyday thinking, which includes the process of refining this process."

""Governing Ourselves Well" argues that it is wise to think of governments as experiments that test the stories we use to assign rights and responsibilities. It goes on to argue that the best such story is the one that calls for us to decide well."

""Linking Well" describes a religious end that both materialists and dualists can agree to pursue. In doing so, it explores what Albert Einstein believed stands at the cradle of true art and true science."

““Competing Well” refines Douglas Hofstadter’s concept of superrationality, John Boyd’s grand strategy for winning, and the modern concept of biological evolution.”

were changed to:

“The next five chapters describe pursuits of boundless factors of deciding well, each of which forms a facet in the complex model of deciding well put forth in this work.“Contemplating Well” explores the role of beauty in deciding well. The key to understanding this role is a new concept of excellence in means, a concept that calls for removing ever more waste from the process of deciding well. “Believing Well” outlines the process of refining everyday thinking, which includes the process of refining this process. “Governing Ourselves Well” argues that it is wise to think of governments as experiments that test the stories we use to assign rights and responsibilities. It goes on to argue that the best such story is the one that calls for us to decide well. “Linking Well” describes a religious end that both materialists and dualists can agree to pursue. In doing so, it explores what Albert Einstein believed stands at the cradle of true art and true science. “Competing Well” refines Douglas Hofstadter’s concept of superrationality, John Boyd’s grand strategy for winning, and the modern concept of biological evolution.”

Introduction, new eleventh paragraph,

Changed “boundless form of reason” to “natural concept of beauty” in the first sentence.

Appended the sentences: “Similarly, comprehending the grand strategy for deciding well in the pursuit of living well as a whole calls for us to assemble timeless pursuits of boundless factors of deciding well into a whole. Regardless of our ability to “see” this strategy as a whole, we can use its reason to refine our natural sense of beauty.”

Inserted the paragraph after the sixth paragraph.

Chapter 1, *The Wisdom of Effectiveness*, first paragraph

Changed “in order to” to “to” in the first sentence.

Chapter 1, *The Wisdom of Effectiveness*, fifth paragraph

Changed “managers who use this model do not manage their people in ways that encourage them to learn” to “most managers who use this model have their people follow set procedures for setting up tools” in the third sentence.

Chapter 1, Ever More Complete Boundless Models, third paragraph

Changed “relate to each other” to “intertwine” in the fourth sentence.

Chapter 1, *Ever More Complete Boundless Models*, third paragraph, footnote

Changed “deciding well” to “deciding well in the pursuit of living well” in the last sentence.

Chapter 2, introduction, last paragraph, second footnote

Moved footnote to the end of the first paragraph.

Chapter 2, Trade, last paragraph

Changed “will” to “may” in the last sentence.

Chapter 3, *Overcoming Constraints in Deciding Well*, last two paragraphs

Moved the last two paragraphs to the end of the first paragraph.

Chapter 3, *Three Approaches to Public Order*, last paragraph

Removed the parentheses from the first sentence.

Chapter 4, *Academic Fields*, third paragraph

Changed “all of” to “all” in the third sentence.

Changed “The arts” to “They” in last sentence.

Chapter 5, The Explicit Experiment, fourth paragraph

Changed “implicitly evolutionary” to “agnostic” in the second sentence.

Chapter 5, The Explicit Experiment, last paragraph

Deleted “(A. L. A. Schechter Poultry Corporation v. United States, 295 U. S. 495)” from the last sentence.

Chapter 5, *A Sovereign Story for Deciding Well*, last paragraph

Changed "well" to "well (where to decide well is to learn to decide ever more wisely)" in the first sentence.

Changed "Modernism" to "Modern thinking" in the second to last sentence.

Chapter 5, Good Policies, first paragraph

Changed "From the boundless view, governing" to "Governing" in the first sentence.

Chapter 5, *Pursue Boundless, Not Current Order*, last paragraph

Changed "myopic" to "foolish" in the last sentence.

Chapter 6, *Pursuing Eternal Oneness*, last paragraph

Changed "are" to "save scarce resources but are" in the first sentence.

Chapter 7, *E-M Theory*, second paragraph

Changed "was able to demonstrate" to "demonstrated" in the last sentence.

Chapter 8, Proving Boundless Reason, last paragraph

Deleted "general" from the fourth sentence.

Chapter 8, Governing Our Minds, last two paragraphs

"Governing our minds well calls for good communication between the parts of our minds. A danger of opening more of our minds to consciousness is opening consciousness to more of our daemons. The line between genius and madness is often a fine one. A strategy for deciding well that does not describe the constraints in governing our minds well is dangerously incomplete. In addressing this issue, Plato offered three maxims from the Delphic temple of Apollo: "know thyself," "nothing overmuch," and "[make] a pledge, and thereupon perdition."[7]"

"From the boundless view, opening ever more of our unconscious minds to consciousness is a means of refining our knowledge of deciding well. In working together to refine this knowledge, we refine our culture."

were changed to;

"Governing our minds well calls for good communication between the parts of our minds. A danger of opening more of our minds to consciousness is opening consciousness to more of our daemons. The line between genius and madness is often a fine one. A strategy for deciding well that does not describe the constraints in governing our minds well is dangerously incomplete. From the boundless view, opening ever more of our minds to consciousness is a means of pursuing Eudaemonia. Plato urged temperance in the form of three maxims from the Delphic temple of Apollo: "know thyself," "nothing overmuch," and "[make] a pledge, and thereupon perdition."[7]"

Appendix A, Ideal Forms, last paragraph, footnote

Changed "*a sense of beauty, of what rings true with the pursuit of the boundless end of deciding well*" to "*this natural sense of beauty*" in the last sentence.

Appendix B, *Folding in Processes* seventh paragraph, second sentence

Deleted parenthetical numbers and replaced semicolons with commas.

Appendix B, *Folding in Processes* seventh paragraph

Changed "and work" to "or work" in the second sentence.

Changed "an opportunity" to "a chance" in the third sentence.

Appendix B, *Machine Tools* second paragraph

Changed "they" to "team leaders" in the fifth sentence.

Appendix B, *Inducing the Creation of Knowledge* third paragraph, last sentence

Deleted parenthetical numbers and replaced semicolons with commas.

Appendix C, introduction, first paragraph

Changed "concept of beauty" to "natural concept of beauty" in the first sentence.

Appendix C, The Forgotten Role of Octagons, entire section

Changed "Wisdom" to "Holy Wisdom" in all (3 occurrences).

Appendix C, The Forgotten Role of Octagons, first paragraph

Changed "squaring" to "seeking to square" in the last sentence.

Appendix C, *On the Philosophy Wall*, first paragraph

Changed "is part of a symbol of the complex reason of Plato and Aristotle," to "is" in the second sentence.

Appendix C, *On the Jurisprudence Wall*, second paragraph

Changed "Justinian, a source of civil law, addresses" to "Justinian's civil laws address" and "that concern" to "of" in the first sentence.

Changed "walls" to "circles" in the second sentence.

Appendix C, *On the Jurisprudence Wall*, third paragraph

Changed "Gregory IX, a source of ecclesiastical law, addresses" to "In contrast, Gregory IX's religious laws address" and "that concern learning to live ever more wisely" to "of living well based on what people may learn" in the first sentence.

Changed "walls" to "circles" in the second sentence.

Appended paragraph to the second paragraph.

Appendix C, *On the Theology Wall*, first paragraph

"We can find a variation of the two-cross/eight-ray ceiling theme on the wall dedicated to theology. Just above the center of this wall, rays emanating from the encircled dove form superimposed Greek and Roman crosses. The dove represents the Holy Spirit. Pursuing the truth about the Holy Spirit calls for us to pursue Wisdom."

was changed to:

"Four circles representing God, Christ, the Holy Spirit, and the role of the church on earth descend the down the center of the theology wall. Combined with the five-circle cross on the ceiling, these four circles form a Latin cross. At the center of the wall is the circle symbolizing the Holy Spirit. At its center is a dove. The eight rays emanating from the dove echo the form of the crosses on the ceiling. The dove on the wall and the octagon on the ceiling share the aspirational center of their respective dual crosses."

Appendix C, *An Esoteric Strategy*, entire subsection

"From these various symbols of pursuing Wisdom and of the complex reason of pursuing Wisdom, we may reasonably conclude that the decoration of this room depicts a strategy for pursuing Wisdom. For Roman Catholics, this is a matter of pursuing Holy Wisdom (Hagia Sophia/Logos)."

"From current ignorance of this strategy, we may speculate that the Roman Catholic Church purposely kept it secret. Keeping this knowledge secret is bad only if doing so hinders deciding well. In the short run, whether it is bad is not clear. In the very long run, it is clear: To decide well people need to know how best to decide well."

were changed to:

"From these various symbols of pursuing Holy Wisdom on the ceiling and four walls, we may reasonably conclude that the decoration of this room depicts a strategy for pursuing Holy Wisdom. From current ignorance of this strategy, we may speculate that the Roman Catholic Church purposely kept it secret. Keeping it secret is bad only if doing so hinders deciding well. In the short run, whether keeping it secret is bad is not clear. In the very long run, it is clear: To decide well people need to know how best to decide well."

Appendix C, *An Esoteric Strategy*, first paragraph

"From these various symbols of pursuing Wisdom and of the complex reason of pursuing Wisdom, we may reasonably conclude that the decoration of this room depicts a strategy for pursuing Wisdom. For Roman Catholics, this is a matter of pursuing Holy Wisdom (*Hagia Sophia/Logos*.)."

was changed to:

"From these various symbols of pursuing Holy Wisdom and of the complex reason of pursuing it, we may reasonably conclude that the decoration of this room depicts a strategy for pursuing it."

Appendix C, *A Boundless View of the Whole*, last paragraph

Changed "symbols of Holy Wisdom" to "symbol of Christ" in the last sentence.

Appendix C, The Problem of Heraclitus, last paragraph, footnote

Changed "squaring" to "seeking to square" and "calculating" to "seeking to calculate".

Appendix C, Endless Renascence, first paragraph

Changed "sense of beauty" to "natural sense of beauty" in the second sentence.

Changed "boundless sense of beauty" to "sense of beauty" in the third sentence.

Changes on 1 November 2017

Preface, fourth paragraph

Changed "learn" to "learn about deciding well in the pursuit of living well" in the second sentence.

Introduction, fourth paragraph

Changed "then becomes" to "becomes" in the last sentence.

Chapter 1, Choosing Frames Well, second paragraph, first sentence

"We may call beings bound to live well in the flow of time who have learned to use language to plan, perform, and learn from their actions *people*."

was changed to:

"We may call systems of conceptual tools for planning, acting, and learning from experience *language* and beings bound to live well in the flow of time who have learned to use language *people*."

Chapter 2, introduction, second paragraph

Changed "*(ought) to*" to "*to*" in the second sentence.

Chapter 4, *Modern Policy Mistakes*, fifth paragraph

Moved the last seven sentences to the beginning of the sixth paragraph.

Chapter 7, *A Normal Anomaly*, second paragraph, fourth sentence

"They ended each run after a subject successfully identified two cards in a row."

was deleted.

Chapter 8, introduction, second paragraph

Changed "*language*, systems of conceptual tools for planning, acting, and learning from experience" to "language" in the first sentence.

Chapter 8, Proving Boundless Reason, first paragraph, first footnote

Deleted the last sentence, which provided a YouTube reference to a video of the CMU lecture.

Chapter 8, Proving Boundless Reason, first paragraph, second footnote

Changed "Note" to "Note that trying to prove formally that boundless reason is best because only it can refine itself calls for assuming the existence of a timeless end of living well. Further note" in the first sentence.

Chapter 8, Proving Boundless Reason, last paragraph, footnote

Changed "Auschwitz and Nagasaki" to "Auschwitz" in the first sentence.

Appendix A, introduction, sixth and seventh paragraphs

"We might choose to represent these "work-in-process" objects based on the results of the two-step transformation process. For example, we might represent the objects that are in the process of becoming regular polygons with the character R plus an integer for the number of sides in the result. Similarly, we might represent the objects that are in the process of becoming irregular polygons with the character I plus an integer for the number of sides in the result. Using this scheme, the eleven-object sequence starting with an octagon would be R8, I7, R7, I6, R6, I5, R5, I4, R4, I3, and R3.

"From a boundless view, there is a big problem with this scheme. It presumes that every irregular polygon will have one less side than the regular polygon that precedes it. We can easily rid ourselves of this presumption by basing our scheme on the transformation process itself rather than on the results of this process. For example, we can base our scheme on regular polygons that do not need transforming (N) and those that do (Y). Using this scheme, the eleven-object

sequence starting with an octagon would be N8, Y8, N7, Y7, N6, Y6, N5, Y5, N4, Y4, and N3."

were changed to:

"We might choose to represent these objects based on the results of the two-step transformation process. For example, we might represent the objects that become regular polygons with the character R and those that become irregular polygons with the character I. Using this scheme, the eleven-object sequence starting with an octagon would be R8, I7, R7, I6, R6, I5, R5, I4, R4, I3, and R3. Here, the integer is the number of sides in the result.

"There is a problem with this scheme. It presumes that every irregular polygon will have one less side than the regular polygon that precedes it. We can easily correct this by basing our scheme on the process rather than the results. For example, we might base it on regular polygons that do not need transforming (N) and those that do (Y). Using this scheme, the eleven-object sequence starting with an octagon would be N8, Y8, N7, Y7, N6, Y6, N5, Y5, N4, Y4, and N3. Here, the integer is the number of sides in the regular polygon."

Appendix C, The Problem of Heraclitus, last paragraph

Changed "Further reinforcing this claim" to "Further" in the first sentence.

Changed "image" to "form" in the third sentence.

Changed "images" to "forms" in the first sentence of the first footnote.

Merged the paragraph with the preceding paragraph.

Changes on 15 November 2017

Chapter 1, *The Truth of Wisdom*, fifth paragraph

Changed "the climate cools enough to create dew" to "these villagers migrate to a place where dew forms" in the fourth sentence.

Changed "the villagers" to "they" in the fifth and eighth sentences.

Chapter 3, *Public Entropy*, first paragraph

Changed "a decision process without degrading the" to "the process of deciding well in the pursuit of living well without degrading this" in the third sentence.

Chapter 5, *Promote Savings for Welfare*, last paragraph

Changed "income tax" to "tax on non-exempt withdrawals from this account" in the seventh sentence.

Chapter 5, *Pursue Boundless, Not Current Order*

Changed "Recessions, like forest fires that burn only underbrush," to "Like underbrush fires in forests, recessions" in the first sentence of the last paragraph.

Moved the entire subsection ahead of the preceding subsection, *Promote Savings for Welfare*.

Chapter 6, *Pursuing Eternal Oneness*, first paragraph

Changed "in" to "that we have" in the fourth sentence.

Changed "to achieve" to "we may earn" in the last sentence.

Chapter 6, *Einstein's Twin Warnings*, last paragraph

Changed "In Einstein's words" to "This rings true even from the modern view of Albert Einstein, in which science is a product rather than a process" in the fourth sentence.

Chapter 7, The Scope of Strategy, second paragraph

"At issue is how these twenty experts perceive this one-time collective game. If they believed others would see it from the view of modern game theory, they would defect. If instead they believed that others would see it as something that went beyond modern game theory, they would cooperate."

was appended to the first paragraph and changed to:

"At issue was how these experts would perceive this collective game."

Changes on 6 December 2017

Introduction, seventh paragraph

"Regardless of our ability to make complete sense of this strategy, we can use its reason to refine our natural sense of beauty."

was deleted.

Introduction, eighth paragraph

Changed "people" to "us" in the fourth sentence.

Chapter 1, *The Wisdom of Effectiveness*, eighth paragraph

Changed "and assembling batches" back to "batches" in the fourth sentence.

Chapter 2, A Grander Virtuous Circle, first paragraph

Changed "particularly" back to "including" in the fourth sentence.

Chapter 4, Academic Fields, last paragraph

Put quotation marks around phrase taken directly from Bronowski. Reference footnote remains unchanged.

Chapter 8, Governing Our Minds Well, first paragraph, second footnote

Changed "*best*" to "best" in the first sentence.

Chapter 8, Governing Our Minds Well, third paragraph

Changed "the brain" to "our minds" in the first sentence.

Chapter 8, Governing Our Minds Well, last paragraph, last two sentences

"From the boundless view, opening ever more of our minds to consciousness is a means of pursuing Eudaemonia. Plato urged temperance in the form of three maxims from the Delphic temple of Apollo: "know thyself," "nothing overmuch," and "[make] a pledge, and thereupon perdition.[5]"

"[5] Plato, *Charmides*, trans. W. R. M. Lamb, (164d–165a), available online at <http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.01.0176%3Atext%3DCharm.%3Asection%3D164d> (11 September 2017). Extroverts who find the third maxim confusing may find understanding in the eleventh

chapter of Jacob Bronowski's book, *The Ascent of Man*, in which he uses Auschwitz to highlight the perils of having too much faith in our beliefs. Introverts may find understanding in the sad ends of Georg Cantor and Kurt Gödel. Both found open-ended problems that they believed they could solve. Once they had pledged to solve these tantalizing problems, daemons they believed to be truly good would not let them give up. Cantor died in an asylum. Gödel starved himself to death."

were deleted.

Chapter 8, Governing Our Minds Well, third paragraph

"In *The Republic*, Plato claimed that reasoning well is a matter of governing our minds well. *Just as in an ideal state all people work together in deciding well, in an ideal mind all parts work together in deciding well.* Following in this tradition, we may call the boundless end of governing our minds well Eudaemonia. So conceived, Eudaemonia is a boundless factor of deciding well."

"[5] In the Aristotelian tradition, modern translations of the classical Greek term 'eudaemonia' include happiness, well-being, and flourishing. In the Platonic tradition, 'eudaemonia' means having a good attending or indwelling spirit. Following in this tradition, the boundless end of governing our minds well means having a perfectly good spirit. Given our imperfect knowledge of Wisdom, the pursuits of the boundless ends of living well (Happiness) and governing our minds well (Eudaemonia) are not the same."

was moved to the end of the section and changed to:

"In *Charmides*, an early dialogue that concerns excellence in character and soundness of mind (*sophrosyne*), Plato suggested we might know this virtue by means of the science of science. This science includes not only what we know but also what we do not know. He then questioned whether knowing what we do not know is a contradiction. He also questioned whether this holistic approach to science would be too idealistic to be useful.[6] In *The Republic*, he attempted to resolve these issues by likening governing our minds well to governing states well. To govern states well, he called for rule by people trained to pursue Wisdom.

"Arguably, the questions Plato raised in *Charmides* led Aristotle to reduce the science of science into logically coherent parts. A major problem with this reductionist approach to science is it tends to blind us to finding better problems to solve.

"From the boundless view, the science of science is the science of pursuing Wisdom. Pursuing Wisdom combines a holistic approach to finding problems to solve with a reductionist approach to solving these problems. It calls for us to form governments based on the sovereign right of all people to pursue Wisdom. It also calls for each of us to pursue the timeless end of governing our minds well.

"Following in the tradition of Plato, we may call the boundless end of governing our minds well *Eudaemonia*. So conceived, Eudaemonia is a boundless factor of deciding well.[7]"

"[6] Plato, *Charmides*, trans. B. Jowett, available online at Project Gutenberg <http://www.gutenberg.org/files/1580/1580-h/1580-h.htm> (2 December 2017)."

"[7] In the Aristotelian tradition, modern translations of the classical Greek term 'eudaemonia' include happiness, well-being, and flourishing. In the Platonic tradition, 'eudaemonia' means having a good attending or indwelling spirit. Following in this tradition, the boundless end of governing our minds well means having a perfectly good spirit. Given our imperfect knowledge of Wisdom, the pursuits of the boundless ends of living well (Happiness) and governing our minds well (Eudaemonia) are not the same."

Appendix C, *On the Philosophy Wall*, first paragraph

Changed "This octagon" to "It" and "they" to "Plato and Aristotle" in the second sentence.

Changes on 28 December 2017

Entire book

Checked all Internet references.

Chapter 1, *The Truth of Wisdom*, second paragraph

Changed "the claims" to "a claim" in the third sentence.

Chapter 8, Governing Our Minds Well, last paragraph, footnote

Changed "living well (Happiness) and governing our minds well (Eudaemonia)" to "Happiness and Eudaemonia" in the last sentence.

Added the following to the end of the paragraph: "We can see this in the sad ends of Georg Cantor and Kurt Gödel. Parts of their minds that they believed to be perfectly good would not let them give up trying to solve formally open-ended problems. Cantor died in an asylum. Gödel starved himself to death.

Changes on 31 December 2017

Introduction, second to last paragraph, second and third sentences

"This reason is the natural synthesis of the dialectics of Plato and the logic of Aristotle. It is also the reason of an incomplete synthesis of decision science, game theory, information theory, and fractal geometry that helps us find as well as solve problems in living well."

were changed to:

"This reason has its roots in the concept of the science of science that Plato put forth in *Charmides*."

Chapter 1, *Seeing Through Apparent Miracles*, last paragraph, end

Added the sentence:

"*From this view of the whole of space and time, ignoring uncertainty is unreasonable*."

Chapter 4, second quote

""It would truly be a miracle if this (I would like to say rabid) development [of modern science] had not also begun to make itself felt in the conception of mathematics. Actually, mathematics, by its nature as an *a priori* science, always has, in and of itself, an inclination toward [idealism] . . . Indeed, mathematics has evolved into ever higher abstractions, away from matter and to ever greater clarity in its foundations (e.g., by giving an exact foundation of the infinitesimal calculus and the complex numbers)—thus, away from skepticism."—*Kurt Gödel*"

"Gödel, Kurt, "The Modern Development of the Foundations of Mathematics in Light of Philosophy," *Collected Works, Volume III: Unpublished Essays and Lectures* (New York: Oxford University Press, 1995), p. 377."

was deleted.

Chapter 4, *Academic Fields*, last paragraph, footnote, end

Added the sentences:

"So conceived, science includes a boundless synthesis of decision science, information theory, game theory, and fractal geometry that we use to find problems to solve. This incomplete synthesis addresses concerns that Plato's Socrates raised about the science of science in *Charmides*. For more about this, see the last chapter."

Chapter 5, *Tax Well*, first paragraph

Changed "other" to "those from other" in the fourth sentence.

Changed "long and hard" to "hard" in the fifth sentence.

Chapter 5, *Pursue Boundless, Not Current Order*, first paragraph

Changed "central bankers" to "policymakers" in the second sentence.

Chapter 7, *E–M Theory*, first paragraph

Changed "text on aerial combat tactics" to "manual on combat tactics for jet aircraft" and "tactics manual" to "textbook" in the fourth sentence.

Chapter 8, Governing Our Minds Well, fifth and sixth paragraphs

"In *Charmides*, an early dialogue that concerns excellence in character and soundness of mind (*sophrosyne*), Plato suggested we might know this virtue by means of the science of science. This science includes not only what we know but also what we do not know. He then questioned whether knowing what we do not know is a contradiction. He also questioned whether this holistic approach to science would be too idealistic to be useful.[6] In *The Republic*, he attempted to resolve these issues by likening governing our minds well to governing states well. To govern states well, he called for rule by people trained to pursue Wisdom."

"Arguably, the questions Plato raised in *Charmides* led Aristotle to reduce the science of science into logically coherent parts. A major problem with this reductionist approach to science is it tends to blind us to finding better problems to solve."

were changed to:

"In Plato's *Charmides*, an early dialogue that concerns excellence in character and soundness of mind (*sophrosyne*), Socrates suggests that we might acquire this virtue by means of the science of science. However, he has two concerns. First, the science of science appears to call for us to know what we do not know. Socrates wonders whether this is a contradiction. Second, he wonders whether the science of science is too idealistic to be useful in living well.[6] In *The Republic*, Plato tried to resolve these issues by likening governing our minds well to governing states well. To govern states well, he called for rule by people trained to pursue all that is truly good in living well. In turn, Plato's idealism led Aristotle to reduce the science of science into logically coherent parts. A major problem with this reductionist approach to science is it tends to blind us to finding better problems to solve."

Chapter 8, Governing Our Minds Well, new sixth paragraph

Changed "pursuing Wisdom" to "deciding well in the pursuit of living well" in the first sentence.

Changed "Pursuing Wisdom" to "This science" in the second sentence.

Appendix A, Ideal Forms, last paragraph

Changed "science" to "science," in the first sentence.

Appendix A, second quote

""In mathematics the art of proposing a question must be held of higher value than solving it."—*Georg Cantor*"

"Cantor, Georg, "De aequationibus secundi gradus indeterminatis" (Doctoral dissertation, University of Berlin, 1867)."

was deleted.

Changes on 20 February 2018

Entire book

Checked all Internet references.

Changed “deciding well in the pursuit of living well” to “deciding well in the natural pursuit of living well” in all (6 in text, 2 in footnotes).

Preface, first paragraph

“In early 1955, John von Neumann agreed to deliver the 1956 Silliman Memorial lectures at Yale. He chose as his topic the mathematics of reasoning well. To complete his study of reasoning well, he needed to expand the scope of his pioneering theory of games into the realm of grand strategy. In his theory of games, he assumed that we do not change what we value. To explain reasoning well, he needed to relax this assumption, which tends to blind us to learning to decide ever more wisely. In the conclusion of *The Ascent of Man*, former colleague and fellow polymath Jacob Bronowski described what he sought as “a procedure, as a grand overall way of life—what in the humanities we would call a system of values.” Regrettably, von Neumann died before completing this work. In 1958, Yale University Press published his incomplete lectures under the title *The Computer and the Brain*.”

was deleted.

Preface, new first paragraph

Changed “mathematics” to “science of forms (mathematics)” in the third sentence.

Changed “natural beauty” to “beauty” in the fourth sentence.

Preface, new third paragraph, end

Added the sentence: “We fuel the creation of better means with the resources we need to decide well in the natural pursuit of living well.”

Introduction, second to last paragraph

Changed “boundless approach to” to “science of” in the first sentence.

Changed “incomplete study of the mathematics of reason” to “unfinished study of the mathematics of reason, which Yale University Press published as *The Computer and the Brain*” in the last sentence.

Introduction, last paragraph

Changed “boundless” to “complex” in the first sentence.

Chapter 1, introduction, first paragraph

"Concepts are tools for thinking and communicating, which, when used well, help us our ends (goals)."

was changed to:

"All beings bound to live well in the flow of time seek to survive and to thrive by taking order into and by discarding disorder from themselves and their environments. This book provides a research program for living well based on this simple insight into the business of life. Although we can never know for certain what we need to live well, we can know for certain that we need ever better knowledge of how to live well. Acquiring this knowledge well calls for us to understand how best to reduce our perceptions to descriptions of the world. The atoms of these descriptions are *concepts*, the smallest of tools for thinking and communicating about living well in the flow of time."

Chapter 1, *The Wisdom of Effectiveness*, last paragraph, footnote, first sentence

"Whether Ohno recognized it or not, his strategy for learning balances two infinities, the inexhaustibility of knowledge and the timelessness of producing well."

was deleted.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, fourth paragraph, end

Added the sentence: "Following this line of thinking, we have no free will."

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, sixth paragraph, end

Added the sentence: "Following this line of thinking, we have free will."

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, last paragraph, footnote

"[5] A certainty equivalent is a measure of uncertain cash flows that considers the decider's risk preferences. Consider a bet involving an even chance of winning $1,000,200 or losing $1,000,000. A risk-neutral decider would value this bet at $100, which is the expected value of this bet (0.5 × $1,000,200 – 0.5 ×

$1,000,000). A risk-avoiding decider would value this bet at less than $100 and a risk-seeking one would value it at more than $100. Discounting is a method of accounting for the time value of money. In our age of low-cost computing, the best means of discounting certainty equivalents uses a yield curve rather than a single interest rate."

was changed to:

"[5] Discounting is a method of accounting for the time value of money. In our age of low-cost computing, the best means of discounting certainty equivalents uses a yield curve rather than a single interest rate. Reducing probable cash flows to certainty equivalents is a way of valuing risk. Consider a bet involving an even chance of winning $1,000,200 or losing $1,000,000. A risk-neutral decider would value this bet at $100, which is the expected value of this bet (0.5 × $1,000,200 – 0.5 × $1,000,000). A risk-avoiding decider would value this bet at less than $100 and a risk-seeking one would value it at more than $100."

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

"[7] A prime example of the foolishness of ignoring this wisdom is belief in Laplacian determinism. From the top-down view of the science of deciding well, we must choose between testing empirically whether free will exists or does not exist. The more beautiful problem to solve is testing whether free will exists, which calls for us to act as free will exists. It rings truer with all that we currently know about deciding well in the natural pursuit of living well."

was moved to the end of the sixth section of the quantum mechanics subsection and changed to:

"[4] From the top-down view of the science of deciding well, we must choose between testing empirically whether free will exists or does not exist. The more beautiful problem to solve is testing whether free will exists, which calls for us to act as free will exists. It rings truer with all that we currently know about deciding well in the natural pursuit of living well."

Chapter 4, *Academic Fields*, last paragraph

Changed "career-culminating claim" to "claim" in the second sentence.

Chapter 4, *Academic Fields*, last paragraph, footnote, last three sentences

"So conceived, science includes a boundless synthesis of decision science, information theory, game theory, and fractal geometry that we use to find problems to solve. This incomplete synthesis addresses concerns that Plato's Socrates raised about the science of science in Charmides. For more about this, see the last chapter."

were deleted.

Chapter 4, *Modern Policy Mistakes*, sixth paragraph

Changed "self-similarity and self-referential of deciding well" to "self-similar relation between timeless and boundless ends in deciding well in the natural pursuit of living well" in the fifth sentence.

Chapter 7, *An Extraordinary Anomaly*, second paragraph

"Near the end of the culminating chapter of *The Ascent of Man*, Jacob Bronowski wrote that John von Neumann claimed we will never be able to reduce some multiple-decider problems to models that we can compute. Von Neumann called these problems *games*[7]. The reason that he believed that we can never reduce these problems to computable models is that he treated values as given. From the boundless view, people are not only free to change their values but also encouraged to change them by removing waste from the process of deciding well. At the limit of this process, all people act as if they are a single decider."

"[7] Bronowski, J., The Ascent of Man (Boston: Little Brown, 1973), p. 432."

was moved to the end of the subsection and changed to:

"In game theory, we assume that deciders do not change what they value. In early 1955, game theory pioneer John von Neumann agreed to give the 1956 Silliman Memorial lectures at Yale. He chose as his topic the mathematics of reason. To complete his study of reason, he needed to relax the assumption that deciders do not change what they value. Near the end of the culminating chapter of *The Ascent of Man*, former colleague and fellow polymath Jacob Bronowski described what von Neumann sought to explain as "a procedure, as a grand overall way of life—what in the humanities we would call a system of values." From the boundless view, what he sought was a grand strategy for deciding well in the pursuit of living well. He died before completing these lectures. In 1958, Yale University Press published them in a book titled *The Computer and the Brain*."

"[7] Bronowski, J., The Ascent of Man (Boston: Little Brown, 1973), p. 432. As we have seen, this procedure is an incomplete synthesis of decision science, information theory, fractal geometry, and game theory that rings true with the claim that the whole of science is nothing more than the process of refining everyday thinking."

Chapter 8, Governing Our Minds Well, last two paragraphs

Merged the last two paragraphs.

Changes on 10 July 2018

Entire book

Checked all Internet references.

Preface, first paragraph

Changed "the sciences of forms (mathematics)" to "mathematics" in the third sentence.

Changed "this" to "mathematics" in the fourth sentence.

Changed "deciding well." to "deciding well in the natural pursuit of living well." in the second to last sentence.

Deleted the last sentence: "This relation between predictions and explanations in deciding well is universal, which is to say that it does not vary with beliefs or circumstances."

Preface, second paragraph

Changed "resources." to "resources in living well." in the last sentence.

Introduction, third paragraph

Changed "an endless process: Deciding well is a matter of repeatedly applying a" to "a repeating" in the fifth sentence.

Introduction, fourth paragraph

Appended to the third paragraph.

Introduction, third from last paragraph

Changed "religious" to "spiritual" in the sixth sentence.

Chapter 1, Choosing Frames Well, last paragraph

Changed "This" to "This self-referential approach to deciding well" in the last sentence.

Chapter 1, *The Wisdom of Effectiveness*, first paragraph

Changed "well." to "well, which is to say the science of science." in the last sentence.

Chapter 1, *Seeing Through Apparent Miracles*, second to last paragraph

Changed "fourth dimension of time" to "future" in the last sentence.

Chapter 1, The Wisdom of Wisdom, last paragraph

Changed "*mathematics*, the science of forms (patterns)" to "mathematics" in the first sentence.

Chapter 1, The Wisdom of Wisdom, last paragraph, end (prior to footnote)

Added the sentences:

"Mathematics is a form of science, the science of forms (patterns). So conceived, the timeless end of mathematics is complete knowledge of the set of forms that are perfectly useful in deciding well. Pragmatically, we discover these forms and invent all other forms."

Chapter 1, *The Truth of Wisdom*, sixth paragraph

Changed "original problem" to "problem" in the last sentence.

Chapter 2, *Pleasure and Pain*, tenth paragraph

Changed "two form" to "two virtues form" in the third sentence.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, first paragraph

Changed "apparently strange" to "strange" in the last sentence.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, fourth paragraph

Converted the footnote to text:

"This contradicts Bell's theorem, which states that local variables cannot explain everything that quantum mechanics predicts. Decades of experiments have failed to disprove this theorem."

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, sixth paragraph

Changed "class." to "class, which we may call the *decision class*." in the first sentence.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, sixth paragraph

Changed "class" to "class of interpretations." in the second sentence.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, sixth paragraph, second sentence

Inserted the following sentences:

"As we learn to decide ever more wisely, we learn to work together ever more wisely.[3] We can imagine decision-oriented models in which information flows as freely as it does in modern economic models of perfect competition. In these models, people decide perfectly with respect to all currently available knowledge. In doing so, they act as if they were a single decider facing a single problem, which is the problem that contains all other problems in deciding well. We may think of these models as parts of this universal problem's decision-tree model.[4]"

"[3] This process is not continuous. Imagine a company of poorly trained, unseasoned soldiers. Now imagine that we begin to replace these soldiers one at a time with highly trained, seasoned soldiers. Each replacement may have little effect, some effect, or a large effect on the ability of the company to act as a unit. Physical analogues of the largest effects include thermodynamic phase transitions to superconductivity and superfluidity."

"[4] Decision-tree models consist of representations of events that change the course of events that the decider controls and those that change the course of events that the decider does not control. Given the perfect flow of knowledge useful in living

well, there is one decider, the public. As entropy rises, this symmetry breaks. In general, the better we decide, the more useful the universal decision-tree frame becomes."

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, sixth paragraph, last sentence

"We may call this the *decision class*."

was deleted.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, seventh and eighth paragraphs

"As we learn to decide ever more wisely, we learn to work together ever more wisely. This process is not continuous. Imagine a company of poorly trained, unseasoned soldiers. Now imagine that we begin to replace these soldiers one at a time with highly trained, seasoned soldiers. Each replacement may have little effect, some effect, or a large effect on the ability of the company to act as a unit. Physical analogues of the largest effects include thermodynamic phase transitions to superconductivity and superfluidity."

"Using this class of interpretations of quantum mechanics, we can imagine decision-oriented models in which information flows as freely as it does in modern economic models of perfect competition. In these models, people decide perfectly with respect to all currently available knowledge. In doing so, they act as if they were a single decider facing a single problem, which is the problem that contains all other problems in deciding well. We may think of these models as parts of this universal problem's decision-tree model.[4]"

"[4] Decision-tree models consist of representations of events that change the course of events that the decider controls and those that change the course of events that the decider does not control. Given the perfect flow of knowledge useful in living well, there is one decider, the public. As entropy rises, this symmetry breaks. In general, the better we decide, the more useful the universal decision-tree frame becomes."

were deleted.

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, last paragraph

Shifted the first footnote from "discounted certainty equivalent" to the end of the clause to correct formatting bug.

Chapter 3, The Elephant in the Room, first paragraph

Deleted "(*living beings*)" from the first sentence.

Changed "their environment and by casting disorder from it" to "and by casting disorder from themselves and their environments" in the second sentence.

Chapter 3, The Elephant in the Room, last paragraph

Changed "may never know with complete certainty" to "can never be certain" in the first sentence.

Chapter 3, The Elephant in the Room, last paragraph

Changed "know with great certainty" to "be reasonably certain" in the second sentence.

Deleted "top-down" from the second sentence in the footnote.

Chapter 5, *The Explicit Experiment*, last paragraph

Changed "In 1933," to "That same year" in the eighth sentence.

Chapter 5, Judge Interventions, last paragraph

Changed "the planet" to "life" in the sixth sentence.

Chapter 7, *OODA Loop Analysis*, third paragraph, first two sentences

"Boyd later used his OODA loop model to address the timeless problem of competing well. He did so by adding a learning function to the orientation step of his decision loop and by recognizing that competing well created various problems at different problem scales:"

were changed to:

"Boyd later used his OODA loop model to address the timeless problem of competing well by adding a learning function to the orientation step of his decision loop. He also broke down this problem into the following hierarchical structure"

Chapter 8, Governing Our Minds Well, fifth paragraph

Changed "In turn, Plato's idealism" to "This idealism later" in the sixth sentence.

Appendix A, Ideal Forms, second paragraph

Changed "the *science of forms*" to "*mathematics*" in the first sentence.

Changed "most useful" to "best" in the last sentence.

Appended the sentence: "The timeless end of mathematics is complete knowledge of the set of forms that are perfectly useful in deciding well, hence perfectly beautiful."

Appendix A, Ideal Forms, last paragraph

"From the modern view of Kurt Gödel, mathematics underlies science, and more than logic underlies mathematics.[3] From the boundless view, mathematics underlies science and science is self-referential, hence mathematics is a form of science, the science of forms. The timeless end of this pursuit is complete knowledge of the set of forms that are perfectly useful in deciding well, hence perfectly beautiful. Pragmatically, we discover these forms and invent all other forms."

"[3] In an unpublished 1961 paper titled "The Modern Development of the Foundations of Mathematics in Light of Philosophy" (*Collected Works, Volume III: Unpublished Essays and Lectures*, New York, Oxford University Press, 1995, pp. 374–387), Gödel deplored the drift toward empiricism and away from idealism since the Renaissance. He claimed that there were more fruitful blends or combinations of empiricism and idealism than those that ring true with modern worldviews. His belief that the reason underlying mathematics includes the intuition needed to discover fruitful axioms led him to try to prove this belief formally. The boundlessly reasonable alternative to this impossible task is to try to disprove empirically the usefulness in living well of the beauty that emerges from removing waste from the process of deciding well. The most important part of intuition is this natural sense of beauty."

was changed to:

"In an unpublished 1961 paper titled "The Modern Development of the Foundations of Mathematics in Light of Philosophy," Kurt Gödel deplored the drift from idealism toward empiricism since the Renaissance. He claimed that

there were more fruitful blends or combinations of empiricism and idealism than those that ring true with modern worldviews.[3] From his postmodern view, mathematics underlies science, and more than logic underlies mathematics. His belief that the reason of mathematics includes the intuition needed to discover fruitful axioms led him to try to prove the existence of this intuition formally. From the boundless view, mathematics underlies science and science is self-referential, hence mathematics is a form of science, the science of forms. The boundlessly reasonable alternative to the impossible task of proving the existence of mathematical intuition formally is disproving empirically the usefulness in living well of the beauty that emerges from removing waste from the process of deciding well. *The most important part of intuition is this natural sense of beauty*."

"[3] Gödel, Kurt *Collected Works, Volume III: Unpublished Essays and Lectures* (New York: Oxford University Press, 1995), pp. 374–387."

Appendix B, Inducing the Creation of Knowledge, last paragraph

Changed "problems that create uneven flow" to "problems" in the first sentence.

Changes on 25 August 2018

Introduction, third paragraph

"To correct this mistake, I propose a model of deciding well as a repeating sequence of three basic steps: choosing a temporally bounded problem to solve, attempting to solve this problem well, and learning from the experience."

was changed to:

"To correct this mistake, I propose a learning-oriented model of deciding well that holds true regardless of beliefs and circumstances. This invariant model consists of a sequence of three basic steps: choosing a temporally bounded problem to solve, attempting to solve this problem well, and learning from the experience."

Chapter 8, introduction, last paragraph, end

Added the following sentence:

"This approach combines the approaches to reasoning well of Plato and Aristotle."

Chapter 8, Proving Boundless Reason, first paragraph, first footnote

Changed "lecture titled "A Century of Controversy over the Foundations of Mathematics"" to "talk" in the first sentence.

Chapter 8, Proving Boundless Reason, last paragraph

Changed "embeds mistakes into, or reinforces mistakes in, our networks of knowledge-in-use" to "in living well creates turbulence in the flow of economic resources" in the seventh sentence.

Deleted the eighth sentence: "Releasing these mistakes creates turbulence in financial markets."

Chapter 8, Governing Our Minds Well, last paragraph

Changed "Socrates" to "Plato" in the first and fourth sentences (2 occurrences).

Changed "Plato" to "he" in the fifth sentence.

Chapter 8, Conclusion, first paragraph

Changed "problems that create uneven flow" to "problems" in the first sentence.

Changes on 5 October 2018

Chapter 1, *Ever More Complete Boundless Models*, second paragraph

"Pursuing any boundless factor well calls for us to decide well, which in turn calls for us to pursue all boundless factors well. For example, pursuing Truth calls for us to decide well, which in turn calls for us to pursue Happiness. Similarly, pursuing Happiness calls for us to decide well, which in turn calls for us to pursue Truth. Deciding well calls for us to fit our beliefs together based on this symmetric structure of deciding well. We may call the process of thinking deeply about this task *contemplating well* and the boundless end of contemplating well *Beauty*. So conceived, Beauty is a boundless factor of deciding well."

was moved down one paragraph and changed to:

"Pursuing any boundless factor well calls for us to decide well, which in turn calls for us to pursue all boundless factors well. Deciding well calls for us to fit our beliefs together based on this symmetric structure of deciding well. We may call the process of contemplating how best to remove waste from the process of

deciding well *contemplating well* and the boundless end of contemplating well *Beauty*. So conceived, Beauty is a boundless factor of deciding well."

Chapter 1, *Ever More Complete Boundless Models*, last paragraph, last footnote

Changed "*facets of the boundless end of deciding well*" to "*boundless factors of deciding well in the pursuit of living well*" in the last sentence.

Appendix C, The Problem of Heraclitus, last paragraph, last three sentences

"Both are symbols of reason. The first represents the *philosophy* of Plato and Aristotle; the second represents the *sophistry* of Protagoras and Vitruvius. The first renders endless renascence; the second depicts the cause of our modern confusion of ends.[6]."

"[6] Both are also symbols of seeking to square the circle, the geometric equivalent of seeking to calculate the value of π."

were changed to:

"The image on the left represents the *philosophy* of Plato and Aristotle; the one on the right the *sophistry* of Protagoras and Vitruvius. Both are symbols of the reason of squaring the circle, the geometric equivalent of computing the value on π. The former renders endless renascence; the latter depicts the cause of our modern confusion of ends."

The changes above are for the printed and HTML version. Due to the image locations, the Kindle version differs slightly.

Changes on 20 October 2018

Chapter 4, introduction, fifth paragraph, last four sentences

"Theory-laden facts underdetermine theories that we use to explain causation, which is to say that more than one explanation may fit what we can sense. In choosing between theories that explain equally well from within their own frame, we ought to choose the theory that rings truest with all that we currently know about deciding well. In explaining the world, we ought to look to what we need to adapt to what we cannot predict."

was changed to:

"In choosing between descriptions of the world that explain equally well from within their own frames, we ought to choose the description that rings truest with all that we currently know about deciding well. In doing so, we ought to look to what we need to adapt to what we cannot predict."

Chapter 4, *Recursivity*, second paragraph

Changed "these" to "these (inherently incomplete)" and "tends to lead" to "leads" in the the last sentence.

Chapter 4, *Recursivity*, third paragraph

Changed "is a problem that makes it harder" to "makes it much harder" in the second sentence.

Chapter 4, *Recursivity*, third paragraph, last two sentences

"*In theory, we ought to explain the world in ways most useful to people in deciding well. In practice, these ways are those that ring truest with all that we currently know about deciding well.*"

was changed to:

"*We ought to explain the world in ways most useful to us in deciding well in the pursuit of living well, which are those that ring truest with all that we currently know about pursuing this timeless end.*"

Chapter 4, *Refining Finding Better Problems to Solve*, fifth paragraph, second and third sentences

"Smoothing this flow often calls for trading. Mistrust and ignorance of better means of trade often constrain us from trading in ways that smooth flow."

were changed to:

"Mistrust as well as ignorance of better means of trade constrain us from trading in ways that smooth flow."

Chapter 4, *Modern Policy Mistakes*, third paragraph, last sentences

"The solution to these accounting problems will be the same as the solution to the Soviet accounting problems, replacing a flawed decision-making system with one that depends less on problematic measurements."

was changed to:

"The solution to this Soviet accounting problem was to replace the flawed Soviet decision-making system with one that depends less on problematic measurements. It was to enlarge the measurement problem to the decision-making system level."

Chapter 4, *Modern Policy Mistakes*, fifth paragraph, first footnote, last sentence

"For example, a small rise in the price of a raw material might cause firms to react as modern economists predict; have no immediate effect; or trigger a firm to adopt a new process that changes the industry."

was changed to:

"A small rise in the price of a raw material may cause firms to react as modern economists predict, have no immediate effect, or trigger a firm to adopt a new process that changes the industry."

Chapter 8, introduction, last sentence three paragraphs

"Excellence in relating beliefs depends on the type of end people choose to pursue. When they pursue ends based solely on what they currently know, they seek to solve temporally-defined problems well. We may call the rules that they use rules of logic after the rules of reason that Aristotle used to relate beliefs.

"When people pursue the timeless end of living well, they seek not only to solve temporal problems well but also to find these problems well based on what they currently know about pursuing the timeless end of living well. We may call the rules that they use to relate beliefs well within this approach to living well rules of modern dialectics after the modern interpretation of the form of discourse that Plato used to discover what timeless ends are not.

"When people pursue the boundless end of living well, they seek not only to solve temporal problems well but also to find these problems ever more wisely. We may call the rules that they use to relate beliefs well within this approach to living well rules of boundless reason. This approach combines the approaches to reasoning well of Plato and Aristotle."

were deleted.

Chapter 8, Proving Boundless Reason, first paragraph

Changed “of these three concepts” to “set of rules of” in the first sentence.

Changed “concept” to “set” and “which of these concepts” to “which” in the second sentence.

Chapter 8, Governing Our Minds Well, fifth paragraph

Changed “excellence in character and soundness of mind” to “soundness of mind and excellence in character” in the the first sentence.

Changed “Socrates” to “Plato” in all (2 occurrences in paperback version--failed to change on August 25).

Changes on 28 December 2018

Entire book

Checked all Internet references. Changed Kindle versions to numbering footnotes by chapter. Changed web version heading footnote symbols from numbers to asterisks.

Preface, third paragraph

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

Changed “disproven” to “disproven empirically” in the fourth sentence.

Introduction, fourth from last paragraph

Changed “an information-age analogue of Adam Smith’s” to “a learning-age analogue of Adam Smith’s industrial-age” in the second sentence.

Chapter 1, Choosing Frames Well, third paragraph

Changed “formally” to “meticulously” in the third sentence.

Chapter 1, Choosing Frames Well, last paragraph, sixth sentence

“To choose this frame, we must choose a frame from within which to choose.”

was deleted.

Chapter 1, Choosing Frames Well, last paragraph

Changed "understanding" to "knowing" in the second to last sentence.

Chapter 1, Choosing Frames Well, last paragraph, last sentence

"This self-referential approach to deciding well calls for understanding what makes frames useful in deciding well."

was changed to:"

"We can then use this knowledge to build ever better belief systems for finding problems to solve in the endless pursuit of deciding well."

Chapter 1, *Frames Useful in Deciding Well*, last paragraph

Changed "From a temporal view, excellence in means" to "Excellence in means in pursuing temporal ends" in the second sentence.

Changed "from a timeless view, excellence in means" to "excellence in means in pursuing timeless ends" in the fourth sentence.

Chapter 1, *The Wisdom of Effectiveness*, first paragraph

Changed "deciding well" to "deciding well in the pursuit of living well" in the second sentence.

Changed "is to say" to ", given that it applies to itself, is" in the last sentence.

Chapter 1, *The Wisdom of Effectiveness*, last paragraph, third sentence

Inserted the sentence:

"An early example was learning to produce multiple car models on a single assembly line."

Chapter 1, *The Truth of Wisdom*, second paragraph

Changed "formally prove" to "prove" in the last sentence.

Chapter 1, The Wisdom of Wisdom, second paragraph (5/18/19 refinement)

Changed "those" to "those (forms/patterns)" in the eighth sentence.

Changed "forms (patterns)" to "forms" in the ninth sentence.

Chapter 1, *The Truth of Wisdom*, fifth paragraph, footnote, last three sentences

"Modern science has roots in this concept of language. For an elaborate 500-year-old depiction of this completeness problem, see Appendix C (Renascent Art). For a modern view of some aspects of it, read Nelson Goodman's *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1983).

was moved to the end of the last footnote in this chapter and changed to:

"For an elaborate 500-year-old depiction of this completeness problem, see Appendix C (Renascent Art). For a modern view of some aspects of it, read Nelson Goodman's *Fact, Fiction, and Forecast* (Cambridge, MA: Harvard University Press, 1983).

Chapter 1, *Ever More Complete Boundless Models*, second paragraph, footnote

Changed "deciding well in the natural pursuit of living well" to "deciding well" in the second sentence.

Chapter 2, *Tools for Pursuing Pleasure and Joy*, first paragraph

Italicized "*Sãmkhya*" in the second sentence.

Chapter 3, introduction, fifth paragraph (6/10/19 change)

Changed "use, it becomes just another tool for believing" to "much use, it becomes but a tool for predicting" in the last sentence.

Chapter 3, *Public Entropy*, first paragraph

Changed "*non-knowledge* resources that it is theoretically" to "non-knowledge resources that it is" in the third sentence.

Added the following footnote to the fourth sentence:

"[3] The concept of public entropy stems from the cybernetics of Norbert Wiener rather than the information processing of Claude Shannon. First-order cybernetics concerns seeking well-defined goals, e.g., Wiener's WWII problem of shooting down aircraft with artillery. Second-order cybernetics concerns seeking poorly-defined goals, e.g., Humberto Maturana's problem of maintaining homeostasis in living beings in which living beings and their environments co-evolve. The

boundless approach to deciding well is a refinement of second-order cybernetics based on the self-similarity of deciding well."

Chapter 3, *A Boundless Interpretation of Quantum Mechanics*, last two paragraphs

"From the boundless view, there is a fourth class, which we may call the *decision class*. As we learn to decide ever more wisely, we learn to work together ever more wisely.[3] We can imagine decision-oriented models in which information flows as freely as it does in modern economic models of perfect competition. In these models, people decide perfectly with respect to all currently available knowledge. In doing so, they act as if they were a single decider facing a single problem, which is the problem that contains all other problems in deciding well. We may think of these models as parts of this universal problem's decision-tree model.[4] A defining feature of this class of interpretations is the belief that the world consists of a past, a present, and a practically infinite number of possible futures. Every time a quantum-level object irreversibly transitions from appearing to act as a wave to appearing to act as a particle, the current state-of-the-world changes and a practically infinite number of possible states-of-the-world cease to exist.

"Consider the problem of whether to invest in a research program that has the goal of communicating at greater than light speed. From the view of modern physics, communicating at greater than light speed is impossible; hence investing in a research program to discover a way of communicating at greater than light speed would be foolish. From the boundless view, the discounted certainty equivalent[5] of the benefits of communicating at greater than light speed are small[6] compared to the discounted certainty equivalent of the cost of the research program; hence investing in such a research program would be foolish *now*. The better formal problem to solve is the decision science problem. It rings truer with all that we currently know about deciding well."

"[3] This process is not continuous. Imagine a company of poorly trained, unseasoned soldiers. Now imagine that we begin to replace these soldiers one at a time with highly trained, seasoned soldiers. Each replacement may have little effect, some effect, or a large effect on the ability of the company to act as a unit. Physical analogues of the largest effects include thermodynamic phase transitions to superconductivity and superfluidity."

"[4] Decision-tree models consist of representations of events that change the course of events that the decider controls and those that change the course of events that the decider does not control. Given the perfect flow of knowledge useful in living well, there is one decider, the public. As entropy rises, this symmetry breaks. In

general, the better we decide, the more useful the universal decision-tree frame becomes."

"[5] A certainty equivalent is a measure of uncertain cash flows that considers the decider's risk preferences. Consider a bet involving an even chance of winning $1,000,200 or losing $1,000,000. A risk-neutral decider would value this bet at $100, which is the expected value of this bet (0.5 × $1,000,200 – 0.5 × $1,000,000). A risk-avoiding decider would value this bet at less than $100 and a risk-seeking one would value it at more than $100. Discounting is a method of accounting for the time value of money. In our age of low-cost computing, the best means of discounting certainty equivalents uses a yield curve rather than a single interest rate."

"[6] This presumes that there are no extraterrestrial people who are currently both able and willing to talk to us. Given what the boundless view of deciding well tells us about modern reason, people on other planets capable of communicating with us would likely find doing so to be of little use. At this stage in our evolution, we ought to concern ourselves with being worthy of joining a cosmic conversation, not with the means of joining it."

were changed to:

"From the boundless view, there is a fourth class, which we may call the *decision class*. A defining feature of this class is the belief that the world consists of a past, a present, and a practically infinite number of possible futures. Every time a quantum-level object irreversibly transitions from appearing to act as a wave to appearing to act as a particle, the current quantum state of the world changes and a practically infinite number of currently accessible future quantum states of the world cease to exist. [3]

"From this view, our ignorance of the world and how best to live well in it is part of the world.[4] Overcoming this ignorance includes changing the frames we use to predict and explain the world. Deciding well provides us with the resources we need to change frames well. It also provides us with the resources we need to adapt to the changes in the world wrought by these changes in beliefs.

"From a modern evolutionary view of science, theories based on these frames explain well within the bounds in which they predict well. From the boundless view, however well theories predict within their bounds, they are incomplete as tools for explaining well, for helping us find better problems to solve. Consider the problem of whether to invest in a research program that has the goal of communicating at greater than light speed. From the view of modern physics,

communicating at greater than light speed is impossible; hence investing in a research program to discover a way of communicating at greater than light speed would be foolish. From the boundless view, the discounted certainty equivalent of the benefits of communicating at greater than light speed are small compared to the discounted certainty equivalent of the cost of the research program; hence investing in such a research program would be foolish *now*. The better formal problem to solve is the decision science problem. It rings truer with all that we currently know about deciding well in the pursuit of living well."

"[4] The concept of time here is absolute as well as directional. Its absoluteness stems not only from entanglement but also from the ability of people to cooperate across space and time. Note that this concept of time helps us to explain well, not predict well. As such it does not conflict with the concepts of time of the modern theories of quantum mechanics, general relativity, or thermodynamics as tools for helping us to predict well."

"[5] The boundless view of deciding well presumes that living beings bound to live well in the flow of time seek to order themselves and their environments. We overcome our ignorance of how best to live well in an ever-evolving world rather than (simply) accumulating knowledge about the world as we currently find it: improvements are refinements in pursuing the incompletely defined end of deciding well rather than "surprises" in processing information. The sign of public entropy is that of Norbert Wiener's cybernetics rather than that of Claude Shannon's information theory.""

"[6] A certainty equivalent is a measure of uncertain cash flows that considers the decider's risk preferences. Consider a bet involving an even chance of winning $1,000,200 or losing $1,000,000. A risk-neutral decider would value this bet at $100, which is the expected value of this bet (0.5 × $1,000,200 – 0.5 × $1,000,000). A risk-avoiding decider would value this bet at less than $100 and a risk-seeking one would value it at more than $100."

"[7] This presumes that there are no extraterrestrial people who are currently both able and willing to talk to us. Given what the boundless view of deciding well tells us about modern reason, people on other planets capable of communicating with us would likely find doing so to be of little use. At this stage in our evolution, we ought to concern ourselves with being worthy of joining a cosmic conversation, not with the means of joining it."

Chapter 3, entire final section

"**The Elephant in the Room**
All beings bound to live well in the flow of time naturally seek to order their bodies and environments to suit their needs. They do so by taking order into and by casting disorder from themselves and their environments. For the world as a whole, the amount of order decreases over time. Hence, the source of order that makes life (as we currently know it) possible is the order at the beginning of the world. The odds against our world being as ordered as it appears to have been in the beginning are practically infinite.[7]"

"From the boundless view, we can never be certain whether our world was created, one of a practically infinite number of accidental worlds, or something else. However, we can be reasonably certain that we ought to pay for the privilege of being born into a world conducive to living our life well by paying forward the debt we owe to the living beings that made possible living our life well. We best do so by deciding well using the boundless approach, which calls for us to recognize that we are all as blind men seeking to know an infinitely large elephant.[8]"

"[7] In a lecture given to the Isaac Newton Institute on November 7, 2006, Roger Penrose estimated the odds against our universe being as ordered as it appears to have been at the big bang to be at least ten-to-the-ten-to-the-one-hundred-and-twenty-third power to one. Allowing for the possibility of physical laws and constants other than those of our universe would yield even longer odds."

"[8] A prime example of the foolishness of ignoring this wisdom is belief in Laplacian determinism. From the view of the science of deciding well, we must choose between testing empirically whether free will exists or does not exist. The more beautiful problem to solve is testing whether free will exists, which calls for us to act as free will exists. It rings truer with all that we currently know about deciding well in the natural pursuit of living well."

was changed to:

"**The Pragmatic Idealism of "Boundless" Science**
In the introduction to his history of Western philosophy, Bertrand Russell described modern science as all *definite* knowledge, theology as all *dogmas* that go beyond definite knowledge, and philosophy as the No Man's Land between science and theology, the application of the reason of science to what lies beyond definite knowledge.[8]

"From Russell's modern view of science, consider a theory that reconciles quantum mechanics and relativity theory. Regardless of how well such a theory

helps us find better problems to solve, if it does not predict well it is not part of science. A major problem with this view is that we can never know whether the frames underlying science are the best ones. Supposedly objective facts underlying science are laden with theory.

"The boundless approach to science addresses this problem with a grand strategy for learning ever more about the world. Rather than seeking ever better descriptions of the world based on an evolving set of rules for judging descriptions by how well they predict, it uses an evolving set of rules for judging descriptions by how well they help us to decide well. Regardless of how well a theory that reconciles quantum mechanics and relativity theory predicts, if it helps us find better problems to solve in deciding well it is part of science.

"We can imagine idealized models of deciding well in which information flows as freely as it does in modern economic models of perfect competition. In these models, people decide perfectly with respect to all currently available knowledge, which includes knowledge of how to decide ever more wisely. As people learn to decide ever more wisely, they learn to work together ever more wisely. This process is not continuous. Imagine a company of poorly trained, unseasoned soldiers. Now imagine replacing these soldiers one at a time with highly trained, seasoned soldiers. Each replacement may have little effect, some effect, or a large effect on the ability of the company to act as a unit. The largest effects are like the thermodynamic transitions to superconductivity and superfluidity. Once the number of seasoned soldiers passes a critical point, the group starts acting like a unit. Now imagine the reverse process, of replacing highly trained experienced soldiers in a cohesive unit with poorly trained inexperienced recruits. With each replacement, unit cohesion drops. In mathematical terms, symmetry breaks. *In general, the better people decide, the more useful the boundless model of deciding well in the pursuit of living well becomes.*"

"[8] Russell, Bertrand, *A History of Western Philosophy* (New York: Simon and Schuster, 1946)."

Chapter 4, *Refining Finding Problems to Solve*, second paragraph, footnote

"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 currently improve our higher-level internal programming beyond the bounds set by our genetic programming. Therefore, we can currently 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:

"From the prevailing modern evolutionary view, we cannot currently improve our higher-level internal programming beyond the bounds set by our genetic programming. Hence, we can currently assume that our fully realized internal programming is fixed. From the boundless view, our internal programming depends not only on the genetic-level programming of our human cells but also on that of those of other living beings that inhabit our bodies. As colonies of cooperating and competing living beings, we can change our genetic-level programming by changing the composition of our bodies, e.g., by feeding microbes in our guts that promote living well and by starving those that hinder living well."

Chapter 4, *Refining Finding Problems to Solve*, second paragraph

Changed "robots" to "computers" in the first sentence.

Chapter 4, *Refining Finding Problems to Solve*, third paragraph

Changed "Another" to "A second" in the third sentence.

Chapter 4, *Refining Finding Problems to Solve*, fourth paragraph (last sentence added on 6/15/19)

Changed "Yet another" to "A fourth" in the first sentence.

Inserted the paragraph:

"A third way in which we can refine our knowledge of deciding well is to weed out all belief systems that deny that we have free will. In deciding well, we must choose between testing empirically whether free will exists or does not exist. The more beautiful problem is the latter, which calls for us to act as if free will exists. It rings truer with all that we currently know about deciding well in the natural pursuit of living well. Acting as if free will does not exist conflicts with striving to decide well in living well."

Chapter 4, *Modern Policy Mistakes*, second paragraph, second and third sentences

"Imagine a pill that gives people the energy, clarity, and wholeness to decide better. Releasing this pill to the market would change how people decide to live."

was changed to:

"Imagine an innovation that gives people the energy, clarity, and wholeness to decide ever more wisely. Disseminating this knowledge would greatly change how people choose to live."

Chapter 4, *Modern Policy Mistakes*, second to last paragraph

Changed "near-freezing" to "freezing" in the second sentence.

Chapter 5, introduction, last paragraph

Changed "that is, if the claims that secure sovereign rights" to "these claims" and "the truth of these claims" to "their truth "in the last sentence.

Chapter 5, *A Sovereign Story for Deciding Well*, last paragraph

Changed "modern" to "modern (reductionist)" in the third to last sentence.

Added the following sentence: "Which "truth" will stand the test of time?"

Chapter 5, *Judge Interventions* last paragraph

Changed "nearly impossible" to "very difficult" in the fourth sentence.

Chapter 5, Liberalism, first paragraph

Changed "Priestley" to "Priestley, then living in the enemy city of Birmingham, England" in the sentence that introduces the quote.

Chapter 6, introduction, first paragraph, first sentence

"To claim that we naturally seek to survive and thrive is not the same as to claim that we ought to do so."

was changed to:

"All beings bound to live well in the flow of time naturally seek to order their bodies and environments to suit their needs. They do so by taking order into and

by casting disorder from themselves and their environments. Assuming the amount of order in the current state of the world decreases over time, the source of order that makes life (as we currently know it) possible is the order at the beginning of the world. The odds against our world being as ordered as it appears to have been at the beginning are practically infinite.[1]

"We can never be certain whether our world was created, one of a practically infinite number of accidental worlds, or something else. However, we can be reasonably certain that we ought to pay for the privilege of being born into a world conducive to living our life well by paying forward the debt we owe to the living beings that made possible living our life well. We best do so by deciding well using the boundless approach, which calls for us to recognize that we are all as blind men seeking to know an infinitely large elephant."

"To claim that we naturally seek to live and to live well, to survive and to thrive, is not the same as to claim that we ought to do so."

"[1] In a lecture given to the Isaac Newton Institute on November 7, 2006, Roger Penrose estimated the odds against our universe being as ordered as it appears to have been at the big bang to be at least ten-to-the-ten-to-the-one-hundred-and-twenty-third power to one. Allowing for the possibility of physical laws and constants other than those of our universe would yield even longer odds."

Chapter 7, *A Normal Anomaly*, second paragraph

Changed "philosopher-scientist Thomas Kuhn" to "Thomas Kuhn" in the first sentence.

Chapter 7, *A Normal Anomaly*, last paragraph

Changed "modern game theory" to "prevailing modern game theory" in the last sentence.

Chapter 7, *OODA Loop Analysis*, last paragraph

Changed "experiment" to "playing card experiment" in the third sentence.

Chapter 7, The Scope of Biological Evolution, first paragraph

Changed "modern view" to "prevailing modern view" in the first sentence.

Chapter 7, The Scope of Biological Evolution, last paragraph

Changed "living well" to "the pursuit of living well" in the last sentence.

Chapter 8, second quote in heading

""The safest general characterization of the European philosophical tradition is that it consists of a series of footnotes to Plato. I do not mean the systematic scheme of thought which scholars have doubtfully extracted from his writings. I allude to the wealth of general ideas scattered through them."—*Alfred North Whitehead*[2]"

"[2] Whitehead, A. N., *Process and Reality* (New York: Free Press, 1979), p. 39."

was deleted.

Chapter 8, introduction, last three paragraphs

"Excellence in relating beliefs depends on the type of end people choose to pursue. When they pursue ends based solely on what they currently know, they seek to solve temporally-defined problems well. We may call the rules that they use *rules of logic* after the rules of reason that Aristotle used to relate beliefs.

"When people pursue the timeless end of living well, they seek not only to solve temporal problems well but also to find these problems well based on what they currently know about pursuing the timeless end of living well. We may call the rules that they use to relate beliefs well within this approach to living well *rules of modern dialectics* after the modern interpretation of the form of discourse that Plato used to discover what timeless ends are not.

"When people pursue the boundless end of living well, they seek not only to solve temporal problems well but also to find these problems ever more wisely. We may call the rules that they use to relate beliefs well within this approach to living well *rules of boundless reason*. This approach combines the approaches to deciding well of Plato and Aristotle."

were changed to:

"From a modern view, sets of rules of reason naturally fall into two major categories, those that people use to relate beliefs expressed in clearly defined terms and those that concern how people define terms. We may call the first of these *logic* after the rules that Aristotle used to relate beliefs based on clearly defined terms and the second *modern dialectics* after the means that Plato used to try to define ideal terms for living well.

"From the boundless view, there is a third category, one which includes rules of logic, rules of modern dialectics, and rules for using both types well. We may call this *boundless reason* after the boundless approach to deciding well in the pursuit of living well. From this view, logic and modern dialectics are incomplete.

"We can easily see this incompleteness in logic. Consider the statement, "This is an ideal frame for deciding well in the pursuit of living well." We can never prove this statement logically. The best we can do is to disprove it empirically by finding a better frame. This is not to say that logic is useless. We simply need to take care to use logic in situations that call for excellence in believing well based on what we currently know rather than all that can ever be known. *People who believe that reason is nothing more than logic take an engineering approach to overcoming constraints in deciding well in the pursuit of living well.*

"We can also see this incompleteness in modern dialectics. Using the freezing river metaphor from the fourth chapter, modern dialectics does not include rules for preventing the creation of embacles, piles of ice under stress. Embacles slow progress and increase turbulence, particularly turbulence in the form of debacles, the sudden release of large amounts of pent-up stress. *People who believe that reason is nothing more than logic and modern dialectics take a modern evolutionary approach to overcoming constraints in deciding well in the pursuit of living well.*

Chapter 8, Proving Boundless Reason, first two paragraphs

"We may think of the problem of formally proving which of these three concepts of reason is best for living well as a programming problem.[3] Imagine a culture that only uses logic, another that only uses modern dialectics, and a third that only uses boundless reason. If we define the best concept of reason as that of the first culture to achieve the timeless end of living well, then we will never be able to prove formally which of these concepts s best. This is because we can never know that a culture has achieved this end.[4]

"Regardless of our inability to prove formally which of these concepts of reason is best for living well, living well calls for us to choose one. From the boundless view, we ought to choose the one that rings truest with all that we currently know about deciding well. The evidence that the boundless concept rings truest is extraordinary. Hence, we ought to seek to disprove empirically that it is best."

"[3] The inspiration for this thought experiment was an observation that mathematician Gregory Chaitin made in the introductory remarks of a talk that he gave at the Carnegie Mellon University's School of Computer Science on March

2, 2000: “So if you look back at the history of the beginning of this century you’ll see papers by logicians studying the foundations of mathematics in which they had programming languages. Now you look back and you say this is clearly a programming language!””

“[4] Note that trying to prove formally that one of these forms of reason is best calls for assuming the existence of a timeless end of living well. Further note that however useful genetic search algorithms may be in helping people live well, these algorithms have a random element, hence are not useful in helping us to prove formally which form of reason is best for living well.”

were deleted.

Chapter 8, Proving Boundless Reason, last paragraph, first two sentences

“We may test boundless reason by basing our rights and responsibilities on it. We may also test the assumption that it is natural.”

were changed to:”

“As we saw in the fifth chapter, we may test boundless reason empirically by basing our sovereign rights and responsibilities on it. The survival of governments based on boundlessly reasonable sovereign rights stories supports the claim of the usefulness of boundless reason in deciding well in the pursuit of living well. As does the ability of such governments to attract both imitators and what Abraham Maslow called “fully human” people.”

“We may also test empirically whether boundless reason is natural.”

Chapter 8, Governing Our Minds Well, fifth paragraph

“In Plato’s *Charmides*, an early dialogue that concerns soundness of mind and excellence in character (*sophrosyne*), Plato suggests that we might acquire this virtue by means of the science of science. However, he has two concerns. First, the science of science appears to call for us to know what we do not know. Plato wonders whether this is a contradiction. Second, he wonders whether the science of science is too idealistic to be useful in living well.[6] In *The Republic*, he tried to resolve these issues by likening governing our minds well to governing states well. To govern states well, he called for rule by people trained to pursue all that is truly good in living well. This idealism later led Aristotle to reduce the science of science into logically coherent parts. A major problem with this reductionist approach to science is it tends to blind us to finding better problems to solve.”

was changed to:"

"In Western thought, the relation between governing our minds well and the concept of the science of deciding well in the pursuit of living well is an ancient one. In Plato's *Charmides*, an early dialogue that concerns soundness of mind and excellence in character (*sophrosyne*), Plato suggested that we might acquire this virtue by means of the science of science. However, he had two concerns. First, the science of science appears to call for us to know what we do not know. Plato wondered whether this is a contradiction. Second, he wondered whether the science of science is too idealistic to be useful in living well.[3]""

"In *The Republic*, Plato tried to resolve these issues by likening governing our minds well to governing states well. To govern states well, he called for rule by people trained to pursue all that is truly good in living well.[4] In his last and longest dialogue, *Laws*, he explored more pragmatic ways of governing states well.[5] His most famous student, Aristotle, furthered this more pragmatic approach by reducing the science of science into logically coherent parts. As we have seen throughout this work, a major problem with using this reductionist approach to science is it tends to blind us to finding better problems to solve in living well."

"[3] Plato, *Charmides*, trans. B. Jarrett, available online at Project Gutenberg <http://www.gutenberg.org/ebooks/1580> (28 December 2018)."

"[4] Plato, *The Republic*, trans. B. Jarrett, available online at Project Gutenberg <http://www.gutenberg.org/ebooks/150> (28 December 2018)."

"[5] Plato, *Laws*, trans. B. Jarrett, available online at Project Gutenberg <http://www.gutenberg.org/ebooks/1750> (28 December 2018)."

Chapter 8, Governing Our Minds Well, last paragraph, footnote

Changed "solve formally" to "solve logically" in the sixth sentence.

Changed footnote reference from end of the end of the last sentence to the end of the second to last sentence.

Chapter 8, Governing Our Minds Well, sixth paragraph

Changed "approach" to "approach to reasoning well" in the fourth sentence.

Deleted "to science" from the last sentence.

Chapter 8, Conclusion, first paragraph

Changed "prove natural need for people" to "need for living beings" in the first sentence.

Changed "form" to "natural form" in the first sentence.

Appendix A, Ideal Forms, first paragraph

Changed "prove formally" to "prove logically" in the second sentence.

Appendix A, introduction paragraph

Changed "closed" to "(apparent) closed" in the first sentence.

Appendix A, Ideal Forms, last paragraph

Changed "prove the existence of mathematical intuition formally" to "prove logically the existence of mathematical intuition" in all (2 occurrences).

Appendix B, *Production Links*, third paragraph, fourth sentence

"Next, a material handler picks up the C-kanban from the collection box and an empty container from the consuming work center's production area, and returns them to the supplying work center."

was changed to:

"Next a material handler returns the oldest C-kanban from the consuming work center's production area along with an empty container and returns them to the appropriate supplying work center."

Appendix C, Black Clouds in Theology, second to last paragraph

Changed "grounded in ourselves (sophistic art) and poetry grounded" to "based in our current beliefs (sophistic art) and poetry based" in the first sentence.

Appendix C, *The Role of Julius II*, first paragraph

Changed "metaphorically" to "represented by" in the last sentence.

Appendix C, *Imagining the Chief Designer*, fourth paragraph

Changed “ artificat” to “artifact” in the last sentence.