



Time traveler confirms five minute hypothesis!

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Abstract

Conclusion: What matters for any norm is personal time rather than time. Personal time is a time-like relation (roughly, the time measured by your wristwatch) that knits together scattered temporal parts so that they conform to familiar patterns. David Lewis introduced personal time as an interpretive fiction that allows readers to consistently read fictions about time travelers. Inadvertently, Lewis thereby introduced a metric for all value (including prudence, morality, and aesthetics). **Premise:** The application of any norm requires personal time rather than time. This principle of reasoning is illustrated by recent debate about Bertrand Russell’s 5 minute hypothesis. This skeptical hypothesis would be undercut if one needs more than 5 minutes to reason about it. But what reasoners actually require is personal time. Once its priority over time is established for the norms governing reasoning, all remaining norms synchronize to personal time. Re-writing diachronic epistemology in Lewis’ atemporal vocabulary salvages much of what is literally true – and exposes the primacy of causation.

Keywords Personal time · Self-undermining arguments · Higher order evidence · Common sense · Susanna Rinard · Bertrand Russell

Bertrand Russell writes, “nothing that is happening now or will happen in the future can disprove the hypothesis that the world began 5 minutes ago” (1925, pp. 159–160). At that moment, a time traveler from 2921 appears. She resembles the tourists Douglas Adams depicts in *The Restaurant at the End of the Universe*. Adams’s time travelers journey to the farthest future to witness the spectacular finale of creation. Russell’s visitor has traveled to the farthest *past* to witness its unspectacular beginning – an ordinary day in 1921. She tries to congratulate Russell on the millennium of the first accurate dating of the universe’s origin. Russell is incredulous.

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1 Temporally self-undermining arguments

Rightly so, says Richard Fumerton (1990, p. 49): No one can justifiably believe the 5 minute hypothesis. For the hypothesis leaves too little time to competently process the evidence. Suppose one seems to remember the steps leading to the conclusion that the universe is 5 minutes old. The conclusion implies this “memory” does not preserve any justification accumulated from past inferences. Consequently, the only way for the conclusion to be justified is for the reasoning to be unjustified. Therefore, the conclusion is unjustified.

Perhaps a professor trekking through a long proof continues to know a lemma despite forgetting the earlier premises. But he cannot know the lemma if he *never* knew the original premises. Justification resembles ownership. It is an historical process that does not reduce to the present state of the subject. If the professor never bought the lemon he bagged at the market, he does not own the lemon (even if he seems to distinctly remember paying for it). Similarly, if the professor never proved a lemma that he believes he proved, then his deduction from the lemma does not justify the conclusion. A 5 minute young professor may presently share the intrinsic properties of an old professor who manages to retain knowledge of the lemma despite forgetting its premises. Yet only the genuinely forgetful professor knows the lemma. The newly existent professor never forgot because he never knew.

Can the skeptic at least suspend judgment about the 5 minute hypothesis? No, because more than 5 minutes is needed to justify suspending belief about whether the world is older than 5 minutes. If one suspended judgment on the 5 minute hypothesis, one would have to suspend judgment on any proposition that entails its negation. This includes the proposition about completion of earlier steps in the argument.

Suspending judgment differs from a suspension of deliberation. A juror who falls asleep is not suspending judgment. Nor is the juror who abandons deliberation because the parties reached a settlement out of court.

Skeptics commit to the relevance of time pressure when criticizing foundationalists. According to Bertrand Russell’s logical atomism, the certainty of premises concerning present sense data transmits to conclusions about other topics. By the time one reaches the conclusion, complain the impatient skeptics, the premises are no longer certain. Too slow! Indeed, any logically proper names for sense data in the premises no longer have bearers and are therefore meaningless! Russell replies, rather desperately, that the present lasts a few seconds or minutes. That is enough time to reach the conclusion “if you argue quickly” (1918, p. 203).

2 Instantaneous justification?

Does any justification accrue instantaneously? Russell, as a young Hegelian in 1894, reports a flash of insight on the way to buying a tin of tobacco. Russell tossed up his pipe and declared, “Great God in Boots!—the ontological argument is sound!” (1998, p. 60).

Some pictorial proofs seem to routinely produce instantaneous insights. James Brown (2008) compiles an assortment from mathematical libraries. But he also has

outdoor specimens: Will a hiker descending a mountain path from 9AM to 5PM be at the same spot she was yesterday when ascending from 9AM to 5PM? Picture the hiker as twins, Ms. Future and Ms. Past, hiking in opposite directions on the same path on the same day. The two must meet somewhere! The mental imagery yields a point of convergence without plodding through premises.

Geometers continue to use diagrams despite Bertrand Russell's prioritization of discursive argument. Russell himself conceded that "we tend to believe the premises because we can see that their consequences are true, instead of believing the consequences because we know the premises to be true." (Russell, 1907: p. 273) Impartial application of the criterion of fruitfulness suggests that picture proofs are not merely heuristic aids (Brown, 2008, pp. 32–33).

The vivid impression of quick thinking receives experimental corroboration. There is an asymmetry between visual search for the presence of a feature and visual search for the absence of a feature (Treisman & Souther, 1985). For instance, police spot a moving figure in a field of unmoving figures more quickly than an unmoving figure in a field of moving figures. The runner "pops out". One explanation is that the presence of a feature, in this case movement, allows the viewer to conduct a parallel search instead of examining items one by one.

Although parallel processing is quicker, the search still requires time. Loss of the ability to form long term memories undermines map reading and the comprehension of geometrical diagrams. "Flashbulb memories" inspire confidence but are just as reliant on inference as ordinary memory (Day & Ross, 2014).

3 Blowback against the skeptic?

The skeptics won the battle over whether justification requires significant time. But they deployed a weapon that loses the war. For time shortage undermines the basis for any rational response to a skeptical scenario other than rejection. Each rational thinker must disbelieve he is a "Boltzmann brain" that has momentarily coalesced from a random assembly of atoms.

Susanna Rinard (2018, p. 245) thinks there is a slippery slope that exposes the irrationality of all skeptical arguments. Those inferences that are not directly self-undermining are linked to those that are. For instance, there could be a reasonable argument that there is no external world only if there is a reasonable argument that you are a 50 years old brain in a vat. There could be a reasonable argument for you being a 50 years old brain in a vat only if there is a reasonable argument that you are a 5 minute old brain in a vat. And here comes the push intended to tumble the skeptic down the slippery slope: there is no reasonable argument for the 5 minute hypothesis. My focus is on resisting the initial push. I set aside any reservation about the chain of conditionals.

Rinard (2018, p. 247) compares the 5 minute hypothesis to the news that one was secretly dosed with a drug just before answering an easy logic question. The drug impairs the typical imbiber's cognition and meta-cognition. Rinard contends this higher order evidence about how well one processes the evidence reveals a limit on what one can justifiably believe by deduction. Despite competently executing a

sound deduction from a justified premise, you are not thereby justified in believing the conclusion. News that you have taken the drug resembles an undercutting defeater.

Commentators on higher order evidence emphasize two differences between defeaters and higher order evidence (Henderson, 2022). First, normal defeaters are relevant to the topic of what is allegedly known. In contrast, the imbiber's answer to the logic question is not about him. Second, normal undercutters are impersonal. News that you are drugged merely makes bystanders relieved that they have not been drugged. The undrugged can justify conclusions by competent deduction from justified premises. The drugged discover nothing by deduction even if they turn out to be among the lucky few immune to the drug.

Some may think this second contrast does not apply to the hypothesis that the universe popped into existence 5 minutes ago. Everybody is affected! But this overlooks the extraordinary opportunities for knowledge presented by time travel and side-opportunities that become noticeable from the stage light of time travel theatre.

4 The relativity of the five minute hypothesis

The tourist from 2921 pities Bertrand Russell for not being able to learn from her testimony that his 5 minute hypothesis is true. She has had plenty of time to consider the evidence.

Admittedly, the tourist never took advantage of her opportunity to study science. Her specialty is cosmetology rather than cosmology. Fortunately, intellectual division of labor persists to 2921. Laymen know, by testimony from cosmologists, that the universe began in 1921.

Russell deferred to the scientists of his era—even when they contradict common sense. He quips: “Naïve realism leads to physics, and physics, if true, shows that naïve realism is false. Therefore, naïve realism is false.” (1940, pp. 14–15) Nevertheless, Russell (after renouncing his youthful Hegelianism) presents himself as a champion of common sense on practical matters—as manifest from his journalism, moralizing and politics. His *Common Sense and Nuclear Warfare* (1959) is not sarcastically titled. Even in theorizing, Russell takes common sense as his point of departure, not messages from the Delphic oracle (in contrast with Socrates) or prophets (in contrast with Thomas Aquinas) or metaphysical epiphanies (in contrast to Georg Hegel).

Russell's colleague G. E. Moore, the twentieth century's best known defender of common sense, concedes that astronomy shows that common sense underestimates our distance to the closest star. Common sense overgeneralizes from middle sized objects. What Moore denies is that philosophers possess any comparable basis to refute common sense beliefs or even to undercut their basis. Russell, in contrast, thinks that ancient skeptics did undercut the belief that some physical objects are inherently colored. The skeptics raised the epistemic possibility that viewers project color on to objects. Once undercut, physicists went on to refute the belief by showing color to be a secondary quality.

Susanna Rinard (2013, pp. 189–191) contends philosophical beliefs have been tie breakers between empirically equivalent hypotheses in physics. Albert Einstein's special theory of relativity prevailed over Hendrik Lorentz's theory because Einstein

parsimoniously avoids commitment to absolute simultaneity (meta-philosophically important to physicists who wanted a verificationist boundary between physics and metaphysics). Alliances of scientific beliefs and philosophical beliefs can therefore refute common sense.

In principle, contends Rinard, the contribution from science can be diluted to nothing. Therefore, philosophy alone should be able to undercut and even refute common sense beliefs (Rinard, 2013).

This does not follow if beliefs operate as votes. Given that I have one vote and you have two votes, I can never prevail without the alliance of other voters. Indeed, if philosophy is always a mere tie breaker between empirically equivalent theories, then philosophy depends on a coalition with other beliefs in its competition with common sense.

This holistic gap might be plugged by a priori corrections of common sense. Set theorists working on infinity refuted the common sense belief that the whole is greater than any of its proper parts. In the twentieth century, mathematicians working on infinity established one to one correspondence as a sufficient condition for equinumerosity. Since the set of even natural numbers can be put into a one to one correspondence with the set of all natural numbers, this whole fails to be greater than one of its proper parts.

Thomas Reid has several categories of common sense a priori propositions. He lists “Thoughts require a thinker”, “Attributes require a subject”, plus grammatical generalizations such as “Every complete sentence contains a verb”. Some armchair linguists claim to refute Reid’s grammar with ‘This sentence no verb’. David Lewis would nominate the counterfactual ‘No Hitler, ‘no A-bomb’ (1973, p. 4).

None of G. E. Moore’s many specimens of common sense statements purport to be a priori. If Moore was hoping to thereby avoid armchair refutation of common sense, he overlooked the logical point that empirical claims always entail a priori consequences (trivially, all logical truths). For instance, Moore’s common sense statement “My body existed yesterday” entails the a priori truth that at some time, something exists. Some contingent statements entail the negations of a priori statements. For instance, the headline ‘LARGEST PRIME NUMBER DISCOVERED’, entails there is a largest prime number—which can be disproved by Euclid’s *reductio ad absurdum*. J. M. E. McTaggart (1908) attempted a *reductio ad absurdum* of common sense statements such as ‘The world has existed for many years past’. He argues a priori that temporal statements require assigning incompatible properties to an event (past, present, and future).

Common sense philosophers are committed to its relevance to a priori propositions because they adduce common sense actualities as proofs of possibility. To refute Zeno’s proof that motion is impossible, they wave a hand while arguing: ‘A hand is waving, therefore, motion is possible’. This hand waving argument soundly derives an a priori conclusion from an a posteriori premise. Waving stimulates and sustains occurrent belief in the premise throughout the deduction.

Moore tries to refute the 5 minute hypothesis by claiming common sense beliefs are always more plausible than philosophical beliefs. (Actually, Moore needs the far stronger premise that any common sense statement is more plausible than any

disjunction of philosophical statements.) Russell dismisses Moore's universal plausibility ranking as historically naive. Nevertheless, Russell still needs to be convinced that the cosmetologist is correctly reporting the views of future scientists.

As a scholar, Russell prefers to study revolutionary evidence first-hand. *Understanding* is not transmissible by testimony. If Russell merely copies the answer of the reliable physicist Madame Curie, he knows her answer to be correct but does not know why.

Russell's reluctance to rest on testimony is manifest in his circumspect reaction to Albert Einstein's twin paradox. If one twin travels near the speed of light while the other remains on earth, then the traveler may return from a short journey to find his twin an old man. The journey was short as measured by the traveler's wristwatch and yet long as measured by the wristwatch of his earthbound twin. Russell took time off from philosophy to grapple with the counter-intuitive physics responsible for this apparent contradiction. The struggle intensified when Russell went beyond the special theory of relativity: "The geometry in Einstein's General Theory of Relativity is such as I had declared to be impossible." (Russell, 1959, p. 31) Eventually, a converted Russell published a popularization of Einstein's physics in *The ABC of Relativity*.

To accept the congratulations of the cosmetologist, Russell needs more evidence for the 5 minute hypothesis – and more time to consider it. So, the cosmetologist gives Russell a lift to 2921 in her time machine. Upon arrival in 2921, Russell studies for 10 years at the finest universities. After being slowly convinced that he has indeed traveled forward in time, Russell is then persuaded backwards time travel is also feasible. Education completed, Russell is returned to his moment of departure in 1921. The five minute old Russell knows the universe sprang into existence with a population that "remembered" a wholly unreal past. He belatedly accepts the congratulations of the cosmetologist.

Confirmation of the 5 minute hypothesis is of emotional and practical significance. Russell is relieved that the Great War never happened. He no longer resents being imprisoned for his pacifist publications. Russell's new worry is that all of those in prison are innocent.

5 The surprising hegemony of personal time

Russell looks like he instantly aged from 49 to 59. In David Lewis' terminology, Russell has aged 10 years in "personal time":

If you take the stages of a common person, they manifest certain regularities with respect to external time. Properties change continuously as you go along, for the most part, and in familiar ways. First come infantile stages. Last come senile ones. Memories accumulate. Food digests. Hair grows. Wristwatch hands move. If you take the state of a time traveler instead, they do not manifest the common regularities with respect to external time. But there is one way to assign coordinates to the time traveler's stages, and one way only (apart from the arbitrary choice of a zero point), so that the regularities that hold with respect to this assignment match those that commonly hold with respect external time

.... The assignment of coordinates that yields this match is the time traveler's personal time. It isn't really time, but it plays the role in his life that time plays in the life of a common person. (Lewis, 1976, p. 147)

Personal time is not subjective. A teapot can have personal time. External time is not restricted to physical objects or the environment. All psychological processes occur in external time. Personal time is a general bookkeeping device for re-paginating the parts of a scattered space–time worm into an organically coherent narrative. The re-ordering puts the segments of the worm in a familiar developmental sequence. The time traveler is now predictable and comprehensible.

Those who thoroughly reject absolute simultaneity wince at Lewis' contrast between time and personal time. If we relativize to frames of reference, there is no ontological difference between time in the time machine and "time in a suitably-inclusive reference frame" (Richmond, 2018, p. 5038). An "upside-down" astronaut addressing her crew may privilege 'up' to her audience's bodies to spare the many listeners an adjustment to the speaker's perspective. But there is no absolute up or down.

But we need personal time even after being assiduous about relativizing to frames of time. Consider a version of Einstein's twins paradox in which the accelerated twin is put in suspended animation. His spaceship ages but he does not. The discrepancy between the unaged twin and his aged spacecraft requires personal time. Relativistic physicists, unaware of a scheme to synchronize the twins, would recover from the surprise by inferring manipulation of personal time. They would scour the spacecraft for a cryogenic device or signs that it was jettisoned by conspirators intent on discrediting Einstein.

Lewis develops personal time in the context of eternalism. But Lewis admits that personal time could be used by proponents of hypertime (Beebee and Fisher 2020, pp. 456–7). Indeed, Sara Bernstein urges that this use yields a better treatment of travel to the *future* (2021, p. 250).

If personal time is a fiction and all fictions are less normatively significant than their factual counterparts, then personal time is less normatively significantly than time. But the opposite is true. A long life is good. But only as aligned with personal time (Richmond, 2017). If you were kept in a state of suspended animation for a century, this extra time would be worthless. If you had an extra century of personal time you could have more pleasure and achievements. If this extra personal time is instead filled with pain and failure, the value is negative rather than positive. The surprise is that value (regardless of its valence) tracks a fiction designed to defend the consistency of some fictions – disciplined tales of time travel such as Robert Heinlein's "By your bootstraps" and "-All you zombies-".

Prudence and morality track personal time rather than time. This extinguishes an objection to consequentialism. Deontologists claim that the ground of the obligation to keep a promise is in the *past*. But then why is the *strength* of an obligation proportional to the consequences of violating it? (Sinnott-Armstrong, 2009) Given that the consequences explain the *strength* of an obligation, they should also explain *whether* there is an obligation. Time travelers routinely journey to a time prior to their marriages. This does not release them from their marriage vows. The past is irrelevant to obligations accrued by "historical" processes such as promises and bets. What is

relevant is personal time. A time traveler can be justly pre-punished for a future crime because the verdict can be an *effect* of the crime (Sorensen, 2006). Foreknowledge of the crime is not sufficient for a just guilty verdict. The crime must be a cause of the verdict.

Aesthetics also tracks personal time rather than time. An artwork that passes the test of time, is passing a test that must be measured in the personal time of appraisers. The beauty of Lucretius' 300 page panoramic poem, "The Nature of Things", requires days of personal time to survey.

The objective duration of artworks is irrelevant to their aesthetic value. "The Nature of Things" fell out of circulation for a millennium. During this literary coma, the poem earned no merit (Robson, 2018, p. 737). In 1417 by Poggio Bracciolini rediscovered the poem. That restarted the clock.

Defenders of the test of time concede that cross-cultural *synchronic* approval is another robust test of aesthetic merit (Robson, 2018, p. 729, footnote 1). But this is the same test! What matters is the diversity of the appraisers, not their distribution in time. Substituting personal time for time eliminates this double vision.

Personal time is also crucial for epistemic value. Justification, rationality and understanding concern what one *ought* to believe.

W. K. Clifford contends we are morally obliged to base any belief on evidence *before* that belief. William James's rejoinder is that there are special circumstances in which belief can precede evidence (Williams & Saunders, 2018, pp. 1274–1275). Evidence that a man is a friend may only become available through reliance on that man. This distinction between anterior evidence and posterior evidence allows James to agree with Clifford that it is immoral to run away from the evidence. James is just permitting us to run towards the evidence.

Augustine claims that religious beliefs precede understanding. Proponents of truth conditional semantics deny this is possible. Belief is discriminative. To believe *p* rather than *q*, one must grasp the truth conditions of *p*. And this suffices for understanding *p*.

'Belief never precedes understanding' is refuted by a time traveler who instructs his "earlier self" on the truth conditions of, say, 'There are infinitely many primes'. The time traveler can then demonstrate the truth to himself.

Being self-taught does not violate the principle of the substitutivity of identicals when the teacher and the student are distinct stages of a person. The same point establishes the consistency of synchronic self-deception. In the 2022 movie "The Adam Project" (based on Thomas Scott Nowlin's screenplay "Our name is Adam"), the pilot of a spacecraft, born in 2010, returns home to secretly extract a genetic sample from his 12 years old self. The boy asks how the mysterious pilot entered his family's locked garage. The pilot answers, "It was open". But the pilot *remembered* how to enter. Synchronic self-deception is consistent when a young person-stage believes the falsehood and his older person stage does not believe the falsehood.

Proponents of the deductive closure of justification say those who are justified in believing a premise and sustain justified belief that the premise entails the conclusion will thereby acquire justification for the conclusion. Proponents of counter-closure say that if someone has acquired justified belief by deduction, then they *earlier* had justified belief in the premise. Closure is a sufficient condition that considers inference prospectively, counter-closure is a necessary condition that considers inference

retrospectively. The two perspectives are equally neglectful of cases in which causes fail to precede effects. Time travelers routinely know conclusions before they know their premises.

To accommodate time travelers, re-read ‘before’ as personal time. This re-reading must continue to the basing relation in general. Basing has a causal requirement that must be freed from any constraint of temporal precedence. After all, there could be simultaneous causation. Lowering one side of a rigid see-saw instantly causes the opposite side to rise. Perhaps, *every* causal chain ends in some simultaneous causation. After all, the proximate cause must be present with the effect.

There could be backwards causation. Physicists sometimes present this reversal as a serious option. Richard Feynman’s famously wrote that “positrons can be represented as electrons with proper time reversed relative to true time” (1949, p. 753 n. 7).

There could even be time travel—which almost always, and perhaps inevitably, goes beyond backward causation to include causal loops in which an effect is its own remote cause. Those who doubt the physical possibility of time travel offer physically plausible substitutes. Several of their ersatz time travelers are counterexamples to ‘All causes precede their effects’.

Kurt Gödel (1949) interpreted general relativity in a way that deposes time. He imagines a world in which most inhabitants have experiences indistinguishable from ours and so develop the same temporal vocabulary. But a few of Gödel’s inhabitants have experiences that bear an arresting resemblance to time travel. The lesson Gödel draws from these two sorts of look-alikes is that our temporal vocabulary does not correspond to any time. Just as our spatial experience of sunrise does not favor geocentricism over heliocentrism, our temporal experience does not favor realism about time over anti-realism.

Quantum mechanics has also been interpreted in a way that kills time but spares causation (Baron & Miller, 2014). If time is a total illusion then there is no *simultaneous* causation, no *backwards* causation, and no *time* travel. But personal time survives given that it is a mere time-like relation. Indeed, this fiction will play a central role in an error theory of time that aims to be causally conservative.

If there were a temporal requirement for basing, inquirers could not exploit atemporal causes. Nor could they learn by causes that were in time but which failed to precede their effects.

Doxastic conservatives claim that many beliefs are justified by virtue of being a continuation of what was previously believed. Defense of these old beliefs is required only if challenged by counter-evidence. To accommodate time travelers, the doxastic conservative must re-read ‘previous’ in terms of personal time. In the process, the doxastic conservative will accommodate the drabber counterexamples to ‘All causes precede their effects’.

Dynamic epistemologists report they study how time’s passage affects knowledge and justification. In discussions of the surprise test paradox, they debate the temporal retention principle: If one knows a proposition and has not forgotten it, one still knows it. In discussions of the sleeping beauty problem, epistemologists debate the principle of reflection: If you predict your future belief, then make it your current belief! Dynamic epistemologists further distinguish between synchronic justification

and diachronic justification (Naylor, 2015, pp. 382–383). But once we apply the hegemony of personal time, the dynamicism is exposed as causal rather than temporal. This revelation improves the plausibility of principles that had been formulated temporally. After all, time cannot act on anything. Time does not wear down mountains; things in time wear down mountain by causal processes such as erosion.

Prudence, morality and aesthetics all involve reasoning. Demonstrating the hegemony of personal time for norms of reasoning automatically extends the dominion of personal time. Consequently, the debate over temporally self-undermining arguments, most vividly through Bertrand Russell's 5 minute hypothesis, bears on norms in general. This general relevance is less miraculous when we remember how David Lewis motivates personal time as a means of preserving laws of nature.

6 History of the five minute hypothesis

Contrary to Rinard, belief in the five minute hypothesis is not self-undermining when read literally. This is the temporal reading Russell intended. His five minute hypothesis began as a refutation by logical analogy of a religious timeline (1927, p. 7). In 1857, Philip Henry Gosse published *Omphalos: An Attempt to Untie the Geological Knot* to show the compatibility of the Biblical creation story with Charles Lyell's evidence that the earth is far too old for Genesis to be correct. According to Gosse's Omphalos hypothesis, God created the universe out of nothing at the time entailed by Old Testament genealogies of who begat who. Since God had to start the universe at some point in a natural cycle, the inevitable side-effect was a planet that looks as if it has been around much longer. 'Omphalos' is Greek for navel and alludes to the medieval dilemma of whether Adam had a navel: *If Adam had a navel, God made something useless. If Adam lacked a navel, God made something imperfect.* Gosse's solution is that Adam did have a navel. Adam's personally useless navel is useful for God's purpose of making an orderly universe.

Short universes are more parsimonious than long universes. Postulate only as much of the past as is needed to explain the data! Historians cannot go beyond the evidence and add supernumerary temporal parts. Since orderly universes are also preferred, creation timelines that start as if they are smooth continuations of the past have a lawful advantage over those that start without precedent. Under the Omphalos hypothesis, Charles Lyell's *Principles of Geology* is literally false. But Lyell's book can be profitably re-read in personal time. That charitable interpretation saves the phenomena without lumbering us with dinosaurs and deep time. Bertrand Russell proposed a similar rescue of physics; false statements about physical objects can be redacted into true statements concerning logical constructions of sense data.

Despite these methodological merits, Philip Gosse's ingenious diplomacy was scorned by both sides. Charles Kingsley wrote a letter to Gosse explaining his refusal to review *Omphalos*:

Shall I tell you the truth? It is best. Your book is the first that ever made me doubt [the doctrine of absolute creation], and I fear it will make hundreds do so. Your book tends to prove this - that if we accept the fact of absolute

creation, God becomes God-the-Sometime-Deceiver. I do not mean merely in the case of fossils which pretend to be the bones of dead animals; but in ... your newly created Adam's navel, you make God tell a lie. It is not my reason, but my conscience which revolts here ... I cannot ... believe that God has written on the rocks one enormous and superfluous lie for all mankind. (Hardin, 1982, p. 54).

Kingsley would have been less suspicious of slander if he had earlier read an observation of the 4th century theologian, Ephram the Syrian; "Although the grasses were only a moment old at their creation, they appeared as if they were months old. Likewise, the trees, although only a day old when they sprouted forth, were nevertheless like ... years old as they were fully grown and fruits were already budding on their branches." (McVey 1994, p. 20) Some of the Church Fathers had recognized the implications of creation from nothing. They did not infer God was a liar.

Gosse, and perhaps many 4th century Christians, conceded that God foresaw people being misled by geological formations. Gosse correctly denies this constitutes lying; God never intended to deceive us about the age of the universe. We are just too hasty in our inferences – and too narrow. If we are patient and attend to all the evidence, we will find "fossils" no more misleading than "sunrises". The Biblical genealogies resemble the accurate dates etched into restorations of cathedral floors.

Visitors to Central Park in New York City presume it is a preserve dating back for millennia. In fact, Central Park was designed by the landscape architect Frederick Law Olmsted. The project employed 20,000 men. They used 166 tons of gunpowder, 2.5 million imported cubic yards of stone and earth, plus 40,000 cubic yards of manure (Rosenweig and Blackmar 1992, pp. 150–151). Out went the dumps, shanties, and swamps. In came lakes, meadows, and 270,000 trees and shrubs. The self-effacing nature of Olmsted's project does not make the designer a liar. To keep the vegetation self-sustaining, he had to create a landscape that looks like it was not created in 1858.

The scientists from 2921 might have a similar account of why the universe in 1921 looks ancient. Russell might even popularize the details in *The XYZ of Relativity*. This sequel should revisit his parody of Gosse. Like Rinard, Russell propounds a slippery meta-argument: if Gosse reasonably argued that the universe popped into existence 6000 years ago, then it is equally arguable that the universe popped into existence a thousand years ago or 10 years ago or 5 minutes ago. It is impossible to reasonably argue that the universe popped into existence five minutes ago. Therefore, none of the older dates for sudden creation are reasonably argued (despite each date being an arresting logical possibility). Gosse would reply that dates earlier than six thousand years ago fail to preserve divine revelation. The proper methodology for cosmology is wide reflective equilibrium rather than narrow reflective equilibrium. Only wide reflective equilibrium meets the requirement that a rational belief is based on one's total evidence.

When Russell travels to 2921, he is pleased that everybody has outgrown the Bible. Since no one is trying to preserve Biblical beliefs, the scientists disagree with Archbishop James Ussher's deduction that the first day of creation was October 23, 4004 BC. But the scientists in 2921 believe Ussher's date is far closer to the true date than

the date proposed by the Big Bang cosmologist, Steven Weinberg (1977) in *The First 3 Minutes*.

7 Personal time: good for the skeptic, good for value

The skeptic can deploy personal time in other venues. You might be a computer simulation that compresses 50 years of personal time into 5 minutes. You might dwell in the 1% of a 5 minute old universe that is accelerated. Lessons learned from super-tasks can make this acceleration infinite. The personal time of the accelerated region could include an infinite “past” or an infinite “future” or both (Richmond, 2017).

The skeptic can reply to Rinard: I am only committed to having sufficient *personal* time to finish my reasoning. Since personal time does not entail time, I am not committed to the universe being more than 5 minutes old. Rinard’s attempt to push me down the slippery slope leaves me standing. None of my skeptical hypotheses are jeopardized.

Russell’s original 5 minute hypothesis is verifiable in the broad sense developed by the logical positivists. They allowed verification to proceed by means that are only logically possible. (A restriction to *physical* possibility would make the verification principle circular when adjudicating between hypotheses that disagree on which perceptions are excluded by the laws of physics.) Since ‘The world popped into existence five minutes ago’ is empirically testable, the verificationist is not forced to count its negation as meaningless.

What may be unverifiable is the 5 minute hypothesis when re-read in terms of personal time. This re-reading preserves what is plausible and interesting in attributions of temporal self-undermining. The re-reading also spares commentators on the basing relation from routine counterexamples imported from commentators on causation. This metaphysical correction of epistemology needs to be generalized to economics, ethics, and aesthetics. In addition to conjugating falsehoods into truths, the re-reading unifies value theory.

Is the appearance of personal time across all categories of value a coincidence? No. There is a common cause, namely, causation itself. Value judgments are tuned to action. Action is tuned to manipulability. So says the causal decision theorist. So says the consequentialist. So says the causal theorists of perception and justification. Personal time is a concept that is effectively engineered to track causation. Therefore, its engineer, David Lewis, inadvertently tracked value.

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Declarations

Conflict of interest The author declares none.

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