FINE-TUNING THE MULTIVERSE

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I present and defend an “indexical” version of the Fine-Tuning Argument. I begin by outlining the dialectic between the Fine-Tuning Argument, the Multiverse Objection, and the This-Universe Reply. Next, I sketch an indexical fine-tuning argument and defend it from two new objections. Then, I show that such an argument is immune to the Multiverse Objection. I explain how a further augmentation to the argument allows it to avoid an objection I call the “Indifference Objection.” I conclude that my indexical version of the Fine-Tuning Argument is no less cogent than the standard version, and yet it is immune to the Multiverse Objection.

I. The Fine-Tuning Dialectic

According to the Fine-Tuning Argument (“FTA”), there is a set of laws, constants, and initial conditions—call these the “cosmic features”—that jointly permit complex, biological life.¹ The proponent of FTA claims that if these features had varied slightly from their actual values, such life would have been impossible. Let’s say that a proposition h “predicts” some proposition e iff learning that h is true raises the epistemic probability that e is true: P(e|h) > P(e). Arguably, ontological naturalism strongly predicts that the universe would comprise a life-forbidding set of cosmic features, while classical theism predicts a life-permitting set. Therefore, the argument concludes, the universe’s life-permission is evidence for theism over (ontological) naturalism.²

There are many interesting objections to FTA. In this paper, I will ignore almost all of them.³ Instead, I want to develop a certain response to a certain objection. Klaas Landsman summarizes this Multiverse Objection (“MO”) as follows:

The claim is that there are innumerable Universes (jointly forming a “Multiverse”), each having its own “constants” of Nature and initial conditions, so that, unlikely as the life-inducing values of these constants and conditions

¹For recent statements of sophisticated versions of FTA, see Collins, “The Teleological Argument,” and Swinburne, “Bayes, God, and the Multiverse.”

²Thus I’m going to set aside (for example) simulation-hypotheses, which I take to be close enough to non-naturalism to count as that. See, for example Mizrahi, “The Fine-Tuning Argument and the Simulation Hypothesis.”

in our Universe may be, they simply must occur within this unfathomable plurality.\textsuperscript{4} This is a very popular objection to FTA. According to Richard Swinburne, it is scientists’ objection of choice,\textsuperscript{5} and according to Ian Hacking, it is a version of the most-popular sort of objection to design arguments.\textsuperscript{6} Proponents of FTA have replied to MO in three main ways. First, Robin Collins opts for a science-based reply; he argues that multiverse-hypotheses are speculative and that scientifically realistic multiverse-mechanisms would still require a kind of fine-tuning.\textsuperscript{7} Second, Swinburne offers a simplicity-based reply; he argues that a singleton-universe is simpler than a multiverse, and so we have reason to be more confident in the existence of the singleton-universe than in a multiverse.\textsuperscript{8} Both of these replies, I believe, are somewhat persuasive, but I think the proponent of FTA can do better. As for Collins’s reply, at best, it only undercuts the scientific basis for MO; there may still be a priori justified reasons to infer the existence of a multiverse. Indeed, given the information we have about the fragility of life, one might simply argue that our existence itself implies a multiverse, as Darren Bradley does.\textsuperscript{9} And as for Swinburne’s reply, first, I’m not sure that simplicity as a theoretical virtue clearly supports the hypothesis of a singleton-universe, given that some philosophers have appealed to simplicity in order to argue for one of the most profligate multiverses imaginable.\textsuperscript{10} Moreover, one might question the simplicity of the design hypothesis itself.\textsuperscript{11} I also join other authors in criticizing philosophical appeals to parsimony.\textsuperscript{12} Therefore, I will set aside these science-based and simplicity-based replies. Indeed, for the purposes of this debate, I will simply assume that there is a multiverse. As I will show, this conclusion proves irrelevant to whether FTA is cogent.

In contrast to these two replies, Roger White presents the “This-Universe Reply” (“TUR”) to MO: While the existence of a multiverse might explain why some-universe-or-other permits life, it doesn’t explain why this universe (the one we live in) permits life.\textsuperscript{13} I’m going to argue that while TUR is the best reply to MO, it is insufficient as it has been stated so far, because MO can be modified to avoid TUR. (This reply is implicit in

\begin{itemize}
  \item \textsuperscript{4}Landsman, “The Fine-Tuning Argument,” 122.
  \item \textsuperscript{5}Swinburne, “Bayes, God, and the Multiverse,” 103.
  \item \textsuperscript{6}Hacking, “The Inverse Gambler’s Fallacy.”
  \item \textsuperscript{7}Collins, “The Teleological Argument,” §6.3.
  \item \textsuperscript{8}Swinburne, “Bayes, God, and the Multiverse,” 112 ff.
  \item \textsuperscript{9}Bradley, “Multiple Universes and Observation Selection Effects.”
  \item \textsuperscript{10}Lewis, On the Plurality of Worlds.
  \item \textsuperscript{11}Sober, “Parsimony Arguments in Science and Philosophy,” 132–134.
  \item \textsuperscript{12}Sober, “Parsimony Arguments in Science and Philosophy”; Huemer, “When is Parsimony a Virtue?”; Metcalf, “Ontological Parsimony, Erosion, and Conservatism.”
  \item \textsuperscript{13}White, “Fine-Tuning and Multiple Universes”; Hacking, “The Inverse Gambler’s Fallacy.”
\end{itemize}
White's presentation, but most other authors seem to have failed to recognize its power.\textsuperscript{14} However, I will eventually show that the modification in question can be successfully answered by a similar modification to FTA: to hold that God would fine-tune every universe in the multiverse. While there may be good objections to FTA, it will turn out that MO must be abandoned.

As I have sketched the debate between FTA, MO, and TUR, it looks like this:

**(FTA)** The probability that the universe would permit life, given naturalism, is very low.

**(MO)** But the probability that some-universe-or-other would permit life, given naturalism, is high.

**(TUR)** Yet that doesn’t explain why our universe—call it “$\alpha$”—permits life.

How, then, should the proponent of MO reply to TUR? The best reply, and the one that I will spend most of the rest of this paper rebutting, explains that MO targets a different premise than the one it's normally thought to target. Consider a gloss of a standard FTA:

**(L\text{N})** The probability that the universe would permit life, given naturalism, is very low.

**(L\text{T})** The probability that the universe would permit life, given theism, is not very low.

**(C)** Therefore, the fact that the universe permits life supports theism over naturalism.

Normally, to posit a multiverse is an attempt to undercut (L\text{N}); it raises the probability (given naturalism) that some universe somewhere will permit life. But that reply commits a relative of the Inverse Gambler’s-Fallacy.\textsuperscript{15} For example, following Martin Rees,\textsuperscript{16} suppose that a person enters a clothing shop and inspects only one suit, yet finds that it is an exact fit. As Landsman observes:

> [What] needs to be explained is not that some suit in the shop turns out to fit the customer, but that the one he happens to be standing in front of does... Proponents of a Multiverse correctly state that its existence would increase the probability of life existing in some Universe, but this is only relevant to

\textsuperscript{14}White, “Fine-Tuning and Multiple Universes,” 271; Landsman, “The Fine-Tuning Argument,” §5.

\textsuperscript{15}I say “a relative of” because it is not taking the life-permission of this universe to be evidence for a multiverse. But it is taking the evidence for a multiverse as evidence that a particular universe will be a certain way; it is taking evidence that lots of trials have occurred to be evidence that a particular trial came out a certain way. Again, see Landsman, “The Fine-Tuning Argument,” especially §5.

\textsuperscript{16}As related in Mellor, “Too Many Universes.”
the probability of life in this Universe if one identifies any Universe with the same properties as ours with our Universe.\footnote{Landsman, “The Fine-Tuning Argument,” 124, emphasis original.}

And for my part, I cannot see any way around this charge. The only hope for MO, I think, is to switch tactics. The proponent of MO should argue that the multiverse-hypothesis undercuts premise \( L_T \) instead. Recall:

\[(L_T)\text{The probability that the universe would permit life, given theism, is not very low.}\]

This argument is a version of a point White makes:

[While] a malicious shooter may be expected to shoot a person, there is little reason to suppose that he would intend to shoot you in particular. . . . The probability that he will shoot someone is high, given that there is a crowd there, but the probability that it will be you remains very low, regardless of whether the shooting is deliberate. . . . [The] fact that you have been shot does not confirm the malicious gunman hypothesis on the assumption that you are part of a crowd.\footnote{White, “Fine-Tuning and Multiple Universes,” 272, emphasis original.}

Let’s call this reply to TUR the “Indifference Objection” or “IO.” The idea is that a fine-tuner would, for all we know, be indifferent to which universe is fine-tuned (analogously to the shooter’s being indifferent to which person is shot), and so the design hypothesis doesn’t strongly predict that our universe would be fine-tuned.

White does not state his point in terms of how MO should be applied to the premises of FTA, but I think it should be clear that this is how his reply ought to be understood, at least in order for the reply to have maximal strength. Therefore, if we are interested in whether FTA is cogent, we must decide whether IO refutes TUR, whether it shows that \( L_T \) is unjustified.

In the rest of this paper, I present a new defense of TUR, including a new reply to IO. The first step in this process is to formulate an “indexical” fine-tuning argument, which will prove crucial for offering TUR in its full force. After we understand this indexical FTA, we will see that IO is still cogent against it so far, because IO undercuts the \( L_T \)-premise in the argument. Therefore, I will reformulate FTA once more, to remain indexical in nature but also hypothesize that God will fine-tune all universes in the multiverse. We will see that this reformulation comes at no dialectical cost—i.e., it does not lose cogency versus the standard FTA—but refutes IO.

To close this introductory section, I want to preview my overall-argument with an analogy:

Russian Roulette

Suppose that you and four of your colleagues have been enjoying a weekly high-stakes poker game. Unfortunately, after a few sessions, you have all ended up deeply in debt to the Mob. Your philosophy
professors’ salaries, while lucrative, are not enough to cover your debts, and so the mob boss has decided to kill you. However, he is also a gambling man. He explains that he will load five six-shooter revolvers, each with five bullets and only one empty chamber; give each revolver to one of the five of you; and force each person to play two rounds of Russian roulette. If someone survives those two rounds, he or she may go free with his or her debt forgiven. Each of the five of you will go through this process in soundproof, isolated rooms, so you won’t know what happens to your colleagues. But fortunately for the five of you, your friend in the Mob may have been able to tamper with the six-shooters. She would definitely be able to remove all the bullets in one of the five six-shooters. But if she was lucky—at a $\frac{1}{4}$ chance—she would be able to remove all the bullets in all of the five six-shooters.

Your four colleagues leave for their separate chambers, and you sit at a chair with one of the six-shooters in your hand. Now you don’t yet know whether your revolver is loaded, and you must play two rounds of Russian roulette with the six-shooter in your hand. And you don’t know yet whether your colleagues will survive their sessions. But suppose that you survive both rounds.

What are you justified in concluding? You have three relevant choices:

1. I was holding a revolver with five chambers loaded and only one empty.

2. I was holding an empty revolver, because my friend could only tamper with one of the revolvers, but I happened (by chance) to receive that one.

3. I was holding an empty revolver, because my friend tampered with all five of them.

And option (3) is the rational choice. Option (1) has a background-probability of $\frac{3}{5}$ (i.e., $\frac{3}{4}$ [the probability that my friend could only tamper with one revolver] $\times \frac{4}{5}$ [the probability that given that she could only tamper with one, I’d get a loaded one]), but predicts the result at only a $\frac{1}{56}$ probability. Option (2) predicts the result at a 100% probability, but there was only a $\frac{1}{20}$ chance that your friend could only tamper with one revolver and you were lucky enough to receive that empty revolver. Option (3) predicts the result at a 100% probability and had a $\frac{1}{4}$ background-probability of occurring. Therefore, you should conclude that probably your friend tampered with all five of the revolvers. Crucially, if you knew the results of your colleagues’ rounds, then you would have a much better idea of which of the three situations occurred, but you don’t know those results yet.

I suggest that if we agree about the correct judgment in Russian Roulette, then we will ultimately agree that MO is a failure. In brief, my argument is that theism predicts that God might fine-tune every universe
in the multiverse, and theism is not background-improbable enough to render this a bad explanation for our universe’s permitting life.

II. An Indexical Fine-Tuning Argument

Suppose that “α” is the name of this universe. To avoid a version of the Problem of Old Evidence, we must not define α in terms of our own existence. Instead, we can imagine this universe’s existence even without ourselves in it, or imagine (say) our existence as non-physical beings in this universe, beings who do not need α to be fine-tuned in order that we exist in it, or name this universe by saying that it is the universe containing (say) that star in the sky. Let “L_α” refer to the fact that if α exists, then α permits complex, intelligent, biological life, hereafter just “life.” I simply assume for our purposes that the life-permitting range of cosmic features is a small fraction, no higher than 10^{-20}, of the possible range. This estimate is arguably generous to the opponent of FTA, but as noted, I won’t defend here the scientific claims alleged to underwrite FTA. (We’ll also import some other probability estimates; the exact numbers won’t matter much, but I’ll also make them reasonably generous to the critic of FTA.)

Let “theism” be the hypothesis that a morally good being (which we will call “God”) intentionally created the physical world (i.e., any universes that exist) with the purpose (inter alia) of producing (or allowing) the existence of life. “Naturalism” for our purposes will simply be the hypothesis that theism is false and no being(s) intentionally fine-tuned our universe. We may abbreviate theism as “T” and naturalism as “N.”

I assume for simplicity, and to save space, that either T or N is true, but not both, even though I thereby ignore a few third options. I admit that traditional theism in general, and Anselmian theism in particular, are much stronger claims than the denial of naturalism; after all, the universe could have been fine-tuned by aliens, or computer-simulators. To save space, however, we will mostly confine our attention to the debate between theism and naturalism as defined in the previous paragraph. My overall goal is to show that the Multiverse Objection fails against the hypothesis that the universe was intentionally fine-tuned by a morally good being that preferred that life exist. As we will see, this conclusion generally does not rely on our understanding this hypothesis of design per se to entail the hypothesis of theism or Anselmian theism. In any case, readers can

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19I thank an anonymous referee for this point. On the Problem of Old Evidence, see Monton, “God, Fine-Tuning, and the Problem of Old Evidence,” 410–412.

20Collins (“The Teleological Argument,” §1.2) focuses instead on the “epistemically illuminated” range. For simplicity, I’ll talk about “possibility.” Normally here we would mean physical modality, but a case can be made that all we need is metaphysical modality, since the cosmic features are what determine physical modalities. In other words, prior to fine-tuning, all metaphysical possibilities would be physically possible anyway.

21See for example Swinburne, The Existence of God, 181–188; Collins, “The Teleological Argument,” §2. As noted, I’m not going to try to answer other objections to FTA.

replace “theism” with the bare hypothesis that someone who prefers that life exist intentionally chose the cosmic features, and “naturalism” with the denial of that hypothesis, and my arguments will still be of interest.

Let “P(h)” be a function that takes some hypothesis h as its argument and returns the objective epistemic probability—the objectively correct degree of confidence, measured from 0 to 1, that you should have in h—before you learn of some further item of evidence. Let P(h|e) be a function that takes some hypothesis h and evidence e and returns the objective epistemic probability of h, on the assumption that you know that e obtains. For our purposes, I will simply assume that objective epistemic probabilities exist. And as before, let’s say that some hypothesis e “predicts” some hypothesis h iff P(h|e) > P(h).

I can now summarize our indexical fine-tuning argument (“Indexical”) as follows. In this initial statement, for simplicity and clarity, I will not attempt to assign exact probabilities. As noted, I will also assume for simplicity that naturalism and theism are the only two possibilities and are incompossible; this assumption allows us to use the binary-variable form of Bayes’s Theorem.

Indexical

(L\_N) \hspace{0.5cm} P(L\_\alpha | N) is extremely low.
(L\_T) \hspace{0.5cm} P(L\_\alpha | T) is not very low.
(B\_T) \hspace{0.5cm} P(T) is not extremely low.
(Assume) Theism and naturalism are mutually incompossible and jointly exhaustive.
(B\_N) \hspace{0.5cm} \therefore \hspace{0.5cm} P(N) is not extremely high.
(C) \hspace{0.5cm} \therefore \hspace{0.5cm} P(T | L\_\alpha) is high.

This argument is an “indexical” fine-tuning argument because it deals with a particular universe, defined indexically: our universe, i.e., \( \alpha \). And before we continue, note that many are tempted to offer lottery analogies against fine-tuning arguments, but the presence of (B\_T) prevents such objections from being cogent. If you knew antecedently that someone was \( \frac{1}{10} \) likely to cheat on your behalf in a lottery, then it might be rational to explain your winning by invoking that hypothesis.

There may be many reasons to dispute Indexical’s (L\_N), (L\_T), or (B\_T). As noted, I will ignore most of them. For my goal is to explain why a certain version of FTA is immune to MO. I will suggest that this immunity

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24 See, e.g., White, “Fine-Tuning and Multiple Universes,” 269 and passim, for some discussion.
redounds to the standard FTA. To establish this conclusion, in addition to explaining how the modified argument avoids MO, I must only show that my modified argument is no worse, dialectically, than the standard FTA. And thus, in turn, I don’t need to reply to the traditional objections to the standard FTA unless those objections are more powerful against my modified argument. Therefore, I will only address those objections to fine-tuning arguments that might have more purchase against my version.

There are four such objections. I will first answer two objections to indexical fine-tuning arguments in general: the Essentialist Objection (“EO”) and the Descriptivist Objection (“DO”). Next, I will explain how the Indifference Objection (“IO”) identified above can be answered by a further modification to INDEXICAL. Last, I will answer an objection inspired by my reply to IO: an objection I call the “Unfriendliness Objection” (“UO”).

III. Against the Essentialist Objection

Recall that according to the This-Universe Reply (“TUR”), the existence of a multiverse doesn’t raise the probability that this universe (“α”) will permit life. But perhaps it was metaphysically necessarily true that α would have these features. It would not be enough for it to be merely physically necessary; this is just the “more-fundamental law” objection, which Collins refutes. (We would still need to explain why that set of cosmic features turned out to be the physically necessary set.\(^26\)) But if any universe has its cosmic features metaphysically necessarily, then it is not improbable that this universe would permit life. Similarly, if “this universe” simply denotes whatever universe has this universe’s cosmic features, then it is not improbable, even given naturalism, that α would exist. Let’s call this the “Essentialist Objection” or “EO.” More precisely, let “\(F_\alpha\)” denote the extensionally defined cosmic features of α: not “whatever cosmic features α happens to have,” but instead, the actual set of cosmic features that the universe we are in has. Our essentialist might argue this way:

Universe[s] are defined and individuated by their cosmic features. Therefore, any universe with \(F_\alpha\) is α, or (inclusive) any universe without \(F_\alpha\) isn’t α. Therefore, [the Individuation Argument] given a populous multiverse, it is very probable, given naturalism, that α will exist (and have \(F_\alpha\) and thereby permit life), or (inclusive) [The Strong-Essentialist Argument] it is metaphysically impossible that α lack \(F_\alpha\), so it is very probable (indeed, guaranteed), given naturalism, that α will permit life.\(^27\)

For example, Ian Hacking imagines there being a universe for every set of cosmic features, and he argues that this would remove the improbability of our universe’s permitting life: “Why do we exist? Because we are [in]

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\(^{27}\) I am grateful to an anonymous referee for this journal for helping me to state these arguments in their strongest forms.
a possible universe, and all possible universes exist.” Similarly, Neil A. Manson and Michael J. Thrush, in considering TUR, write:

One intriguing metaphysical option is that each set of possible parameter values defines a cosmic essence. If [the multiverse hypothesis] is true, a random subset of these essences is instantiated, yielding many universes. For any universe in the vast array, there would be no possible world in which its free parameters take different values. . . . On this supposition, [the multiverse hypothesis] would indeed make it more likely that the Universe exists, because the cosmic essence possessed by the Universe would have a great number of chances of getting instantiated.

And in replying to White’s arguments, Darren Bradley writes,

Rigidly designate this universe as Alpha. . . . [Does] the Many Universe hypothesis make the existence of our universe, Alpha, more likely? Yes. A universe is Alpha in virtue of its properties. The more universes there are, the more likely that a universe with Alpha’s properties, i.e. Alpha, exists.

One can see why Hacking, Manson, Thrush, and Bradley might endorse this sort of tactic. If universes are individuated simply by their properties, then metaphysically necessarily, we will exist in α (our universe), and α will permit life. And finally, a Lewis-style modal concretism might also imply that α will exist, and as before, that of course we will live in α, since our existence is part of α’s essence. Call this last argument the “Modal-Concretist Argument.” I’ll reply, on behalf of TUR, to all three of the arguments mentioned, and then offer a “sharpshooter” analogy that seems to militate further against these arguments.

A. The Individuation Argument

Recall that the Individuation Argument depends on the premise that any universe with \( F_\alpha \) is \( \alpha \). Manson and Thrush do not merely report an intuition here; they offer an interesting argument:

[Assuming] the universes all adhere to basic nomic structures like general relativity, there are no other candidates (except haecceities) for that which individuates them.

Perhaps they would then conclude that any universe with the cosmic features of universe \( U \) is numerically identical to \( U \). In turn, in a reasonably populous multiverse, it is very likely (even given naturalism) that \( \alpha \) will exist, and permit life.

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29Manson and Thrush, “Fine-Tuning, Multiple Universes, and the ‘This Universe’ Objection,” 77.
30Bradley, “Multiple Universes and Observation Selection Effects,” 66.
31Lewis, On the Plurality of Worlds.
32Lewis, On the Plurality of Worlds, 77.
To begin to answer this objection, the proponent of FTA should insist on rigidly designating this universe, as White originally suggests. For our purposes, we stipulate that “α” does not denote ‘whatever universe has properties $F_\alpha$.’ It denotes the universe that contains *that star in the sky*, for example. Crucially, in making this supposition, we do not need to commit to anything as controversial as the necessity of origins, which critics of TUR rightly question. (*That star might have existed in other universes, but those would still be other universes.*) As noted above, we also do not need to assume that we exist in order to understand α; we can imagine this universe without our existence, or with our existence, but as non-physical beings. Thus the proponent of TUR can reply to the above arguments by explaining that she is arguing that the probability, given naturalism, that this universe would be Manson and Thrush’s “the Universe,” Bradley’s “Alpha,” or my “α” (instead of having been some other universe) is very low.

By analogy, suppose I buy a lottery ticket in the following way: I pay money to reserve the 100th ticket printed, whatever it is. Suppose that ninety-nine tickets will be printed with “loser” on them, and one will be printed with “winner,” and the winner of this lottery is whoever receives the ticket with “winner” printed on it. Suppose I receive the ticket with “winner” printed on it. I should be surprised that I won, even though someone could argue, analogously to Manson, Thrush, and Bradley’s views, that this was bound to happen. After all, a ticket is the winning ticket all-and-only in virtue of its having “winner” printed on it. But the probability that the ticket I reserved would be the “winner” is low, just as the probability that this universe would be “the Universe” or “Alpha” is low.

Further, in reply to the Individuation Argument, I can report immediately that it seems obvious to me that there could exist an exact (but distinct) copy of this universe. Or, similarly, it seems obvious to me that when God conceives of a universe-type to create, he can then choose the quantity of copies (i.e., tokens) of that universe to create. Therefore, it seems obvious to me that not every universe with $U$’s cosmic features is $U$ itself. Anyone who shares this intuition will have reason to affirm that a universe’s cosmic features are metaphysically distinct from its identity.

**B. The Strong-Essentialist Argument**

Recall that according to the Strong-Essentialist Argument, any universe without $F_\alpha$ is not α:

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33White, “Fine-Tuning and Multiple Universes,” 262. See his reply on 265 to the Hacking-style objection. See also Draper, Draper, and Pust, “Probabilistic Arguments for Multiple Universes,” 288–307 for an explanation of why the Manson-Thrush criticism of TUR fails.

34Manson and Thrush, “Fine-Tuning, Multiple Universes, and the ‘This Universe’ Objection,” 76–77.

35See, e.g., Black, “The Identity of Indiscernibles.”
Whether a universe permits life is part of its essence, and nothing can possibly instantiate anything other than its own essence. Therefore, $\alpha$ could not possibly have failed to permit life. Therefore, it’s not surprising (even given naturalism) that it permits life.

We call this a “strong” essentialist argument because it holds not only that universes have some essential properties or other, but also, that even a universe’s cosmic features may be such essential properties.

To evaluate the prospects for such an argument in general, we need to have a conception of what exactly is happening as a multiverse is being created. There are two possibilities. Either all the universes are created with their cosmic features already present (simultaneously with creation), or else a set of “blank” universes is created, and then the cosmic features are “inscribed” on them. Each possibility is consistent with the scientific basis of multiverse hypotheses. Notably, in the case of blank universes, it’s clear that the essentialist line will fail to explain why our universe permits life. For if it’s true that a genuine multiverse’s universes can each evolve into different (but not new-and-distinct) universes, then cosmic features are not essential properties of the universe; we intuitively wouldn’t say that universes had gone out of existence, and new ones had come into existence. (It would be very strange indeed to say that I had survived the death of the universe and traveled into a different universe.) Therefore, the Strong-Essentialist Argument is only compatible with some scientific hypotheses about cosmogony.

Furthermore, as before, some will have intuitions incompatible with the premise of the Strong-Essentialist Argument. It seems obvious to me that this universe metaphysically possibly could have had different cosmic features. And while conceivability isn’t always clearly a good guide to physical possibility, it is widely relied on (for better or worse) to deliver information about metaphysical possibility. Put another way, suppose that scientists discovered that a cosmic “constant” had changed by a tiny fraction of a percentage-point, in some way mild enough that we survived. (Scientists sometimes perform measurements to see whether these constants change, so it’s not a particularly outlandish supposition.) Should the scientists call a press conference to announce that the universe has been destroyed, but we traveled together to a new universe? I don’t believe so. But if we believe that cosmic features are essential properties, then that would seem to be the reasonable conclusion: $\alpha$ ceased to exist (because it ceased to instantiate its essential properties); some other universe (perhaps universe $\beta$) came into existence, and we survived the change, ending up in $\beta$.

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36I thank an anonymous referee for suggesting a similar argument.


38See Chalmers, “Does Conceivability Entail Possibility?”

C. The Modal-Concretist Argument

Finally, according to the Modal-Concretist Argument, every possible universe will be concrete, and so even given naturalism, $\alpha$ is guaranteed to exist and be concrete.\footnote{I am grateful to a referee for this journal for suggesting this.} In turn, it is 100\% probable that $\alpha$ will permit life.

I reply analogously to how Collins does in his discussion of “unrestricted” multiverse-hypotheses: concretism doesn’t generally remove our justified surprise at various states of affairs.\footnote{Collins, “The Teleological Argument,” §6.2.} Of course we should be surprised if, for example, a person wins the lottery ten times in a row. It shouldn’t remove our surprise to recall that there simply has to be a concrete world in which someone wins the lottery ten times in a row.

Indeed, this argument and the one previously considered both threaten to undermine our probability judgments. The strong essentialist holds that it is an essential property of $\alpha$ that it have $F_\alpha$. But suppose that $L_\alpha$ reports that (in $\alpha$) Smith won the lottery ten times in a row. Why should it not be an essential property of $\alpha$ that $L_\alpha$ obtains? And if it is, why shouldn’t this explain why Smith won the lottery ten times in a row, even given a no-cheating hypothesis? I admit that I have a weak intuition that cosmic features seem fundamental to a universe in a way that particular occurrences (such as lottery results) on Earth don’t, but I can’t think of a clear, principled argument for this conclusion. And ‘$F$ is fundamental to $X$’ doesn’t entail ‘$F$ is an essential property of $X$.’ (The mass of an object strikes me as fundamental to it, but not an essential property of it, in general.) Whether Smith wins the lottery would at least suffice to individuate $\alpha$ from $\beta$, in which she loses the lottery. But I trust that we won’t have to deny that Smith’s winning the lottery ten times in a row raises the epistemic probability that she cheated.

D. Conclusion: A Sharpshooter- Analogy

A further analogy may reinforce my criticisms of EO:

Suppose there is a set of universes (potentially a singleton set), each of which only contains only you (or a counterpart of you) before a firing-squad comprising ten expert sharpshooters ten yards from you.\footnote{Swinburne, “Arguments from the Fine-Tuning of the Universe.”} The order to fire is given. But the ten expert-sharpshooters somehow all miss you.

The proponent of EO could argue that the universe in which they miss you cannot be individuated from any other universe in which they miss a counterpart of you, and so in a reasonably populous multiverse, there will be a universe in which you survive.\footnote{This possibility is reminiscent of quantum-suicide puzzles, which are beyond the scope of this paper. In any case, the right sort of branching, Everettian relative-state multiverse is likely to refute FTA anyway. See, e.g., Tegmark, “The Interpretation of Quantum Mechanics.”} Or perhaps it is an essential property
of a universe that you are hit or missed by sharpshooters’ bullets, and so the universe in which the sharpshooters hit you is impossible—and so it is 100% probable that you should survive the sharpshooters. Or perhaps all possible universes are concrete, so it is guaranteed that you (or a counterpart of you) exist in some universe in which the sharpshooters all miss. Yet intuitively, you should still be surprised if you see that they all missed.44 Perhaps this is because universes are individuable despite having identical features, or because universes have few-to-no essential properties, or because modal concretism doesn’t explain otherwise-improbable occurrences. And more intuitively, I can (in at least a vague way) imagine the gravitational singularity that eventually evolves into this universe, and imagine cosmic features’ coming into existence over time, each of which fortunately permits life, and thereby permits my existence. Intuitively, this process seems analogous to our dodging a series of bullets that would have prevented our existence.

I conclude that EO fails. But it is possible to offer a philosophy-of-language relative of EO as an in-principle objection to our being able to rigidly designate α at all. We turn now to that objection.

IV. Against the Descriptivist Objection

The Descriptivist Objection (“DO”) to Indexical goes as follows:

Premises (L_N) and (L_T) are rendered false by their containing the term “L_α.” The term “L_α” is a nonreferring term, because it’s defined in terms of “α,” which is also a nonreferring term. In turn, “α” is a nonreferring term because it’s impossible to refer to “this” universe.45

Importantly, however, the most plausible versions of descriptivism will fail to underwrite a successful objection to Indexical.46 Indeed, when we look carefully at the main attempts to avoid the objections to a simple descriptive-theory of names, what we see clearly is a series of modifications, all of which immediately allow for Indexical.47

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44 This scenario will be reminiscent of the branching that allegedly occurs, given the Many- Worlds hypothesis, when an observation is made. Yet for the record, such branching also cannot explain why we ended up in a life-permitting universe, since at least some of the cosmic features are not terms in the Schrödinger-Dirac equations; there is no provision in the equations for the evolution of the strength of gravity (for example) as interactions occur. See, e.g., Griffiths, Introduction to Quantum Mechanics, ch. 1.

45 Collins, “The Teleological Argument,” §§ 5.2 and 6.1; something similar also appears in Bradley, “Multiple Universes and Observation Selection Effects,” 66, although not exactly applied to this purpose.

46 See also the powerful objections to descriptivism in Kripke, Naming and Necessity, ch. 2.

47 Rigidified descriptivism (e.g., Michael Nelson, “Descriptivism Defended”) allows the proponent of Indexical to refer to the universe that actually has the features such-and-such, e.g., that actually has the feature that it contains a certain set of constants and laws. Metalinguistic descriptivism (e.g., Katz, “Has the Description Theory of Names Been Refuted?”) is compatible with Indexical; ‘α’ could simply refer to the object that people call ‘this universe.’ Similarly, causal descriptivism (e.g., Lewis, “Putnam’s Paradox”) is compatible with Indexical, since the argument is about the only universe with which we causally interact.
It’s not only descriptivism in general that the opponent of the Indexical needs to defend. Instead, it’s a kind of a strong descriptivism that appears to be a version of the bundle theory in ontology: a theory according to which since objects are merely bundles of properties, one cannot refer to objects by any other way than by referring to their properties.\(^{48}\) Suppose that “weak” descriptivism about names is the theory that as a matter of contingent, linguistic fact, names are mere descriptions. If so, then the proponent of Indexical can simply introduce a reference operator, such as David Kaplan’s:

\[ d\text{that}(\delta) \text{ the object that actually satisfies description } \delta. \]

And then we can recast Indexical by replacing every instance of “\(\alpha\)” with “\(d\text{that}(\alpha)\).” This easy solution works because proponents of Indexical are not trying to analyze the actual semantic character of terms such as “\(\alpha\).” Instead, these proponents are trying to express a set of claims about the universe that we inhabit. Even if certain terms tend to be descriptions, proponents can specify the necessary terms in such a way as to avoid making general claims about how humans (as a matter of contingent fact) use language.

Notably, it is far easier to make an objection like DO in a singleton-universe than to make it in a genuine multiverse. It would be at least somewhat puzzling how to refer to “this” one of “everything that exists.” But of course, if we live in a singleton-universe, then MO is uncogent anyway, for it depends upon the false premise that we live in a genuine multiverse. So suppose, then, that we do live in a genuine multiverse. Referring to “this” universe would be like referring to “this” region of space, which is a perfectly understandable reference. Strictly speaking, “\(\alpha\)” is a “demonstrative”;\(^{50}\) it requires that the speaker indicate which universe she is talking about. One might do so, again, by indicating some nearby object. Or, in causal terms it would go as follows: I have had causal contact with some object in \(\alpha\), and have baptized, as “\(\alpha\),” the universe that contains that object. This should convince the majority of philosophers that I can understand “\(\alpha\)” and refer to \(\alpha\) without simply describing a set of properties.\(^{51}\)

It is not easy to find defenders of a descriptivism that is strong enough to preclude the use of a demonstrative in a fine-tuning argument. Even Russell himself rejected descriptivism for “this” and “that,” and of course we’re using “this” in our definition of “\(\alpha\)” ; we could also refer to \(\alpha\) by

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\(^{49}\)Kaplan, “Demonstratives.”

\(^{50}\)Kaplan, “Demonstratives,” 489.

\(^{51}\)Only a minority of philosophers are Fregeans about proper names, and even many “Fregean” views will be compatible with naming \(\alpha\) in some way that goes beyond merely describing it. Here, see Bourget and Chalmers, “What Do Philosophers Believe?” 476. See also Ludlow, “Descriptions,” §4.1, who usefully surveys some of the many criticisms of Russell’s theory of proper names. The modifications Ludlow considers tend to make room for an indexical FTA; see above.
FINE-TUNING THE MULTIVERSE

Talking about the universe that “I” am in, which would satisfy Russell that we are successfully referring to this universe.\(^{52}\) And most alternative theories allow for Indexical. Clearly, Millian direct-reference theories do.\(^{53}\) So do Kripkean causal-history theories.\(^{54}\) At the very least, the proponent of DO (and perhaps the proponent of EO as well) is forced into several other controversial philosophical positions: not just a strong descriptivism, but also the bundle theory, perhaps mental-content internalism, and maybe even necessitarianism about history and infallibilism about the external world.\(^{55}\) At this point, we should ask what the argument for DO’s strong descriptivism is that’s so powerful that it convinces us to accept all these other counter-intuitive consequences. If no such argument is available, then the indexical nature of our fine-tuning argument is vindicated; DO, like EO, fails.

V. Against the Indifference Objection

Now that we see that there are no in-principle objections to indexical fine-tuning arguments, we can understand how Indexical vindicates the This- Universe Reply (“TUR”). Recall that the Indifference Objection (“IO”) to TUR goes like this:

I grant that a multiverse doesn’t raise the probability that \(\alpha\) will permit life. However, it lowers the probability that a fine-tuner would select exactly \(\alpha\) to fine-tune. After all, if there are \(n\) universes, then given a principle of indifference, the background probability that a fine-tuner would select \(\alpha\) to fine-tune will be \(\frac{1}{n}\) for \(n \neq 0\).

(Recall: The fact that a shooter hits you in a crowd isn’t good evidence that the shooter was targeting you in particular.) My reply will modify Indexical slightly by building into “theism” a conjunct that was, at most, merely implicit before.

According to theism (as we are understanding it in this paper), God is not very unlikely to fine-tune the universe so that it permits (complex, biological) life. Suppose that “\(m\)-theism” (for “multiverse” theism) or “\(T_M\)” is the hypothesis that theism is true and that the God in question would not be very unlikely to ensure that every universe that exists is one that permits life. I argue in the present section that \(m\)-theism is not much less justified than theism, and that this conclusion, in turn, explains why IO fails. For if God would fine-tune every universe that exists, then we need not conclude that the probability that he would fine-tune \(\alpha\) is \(\frac{1}{n}\) for \(n \neq 0\). Instead, it would be \(\frac{n}{n}\) for \(n \neq 0\), i.e., 1. Therefore, again, \(P(L_\alpha | T)\) is not very low. Hence, we should consider whether the mentions of theism

\(^{52}\)Russell, “Knowledge by Acquaintance and Knowledge by Description,” 216.

\(^{53}\)Mill, A System of Logic, Ratiocinative and Inductive, 29ff.

\(^{54}\)Kripke, Naming and Necessity, 91ff.

in Indexical can be replaced by mentions of m-theism at no dialectical cost. The resulting argument can be called “M-Indexical,” an indexical fine-tuning argument for m-theism.

What is \( P(T_M | T) \)? In other words, what is the probability that m-theism is true, given that theism simpliciter is true? Granted, it is difficult to speculate about why God would want to create anything at all. The standard answer is that living creatures have the capacity for various goods that nonliving matter lacks. The non-life-permitting universes would be pointless from this perspective. Similarly, a case can be made that there is no capacity for any kind of ethical value in a universe that lacks life. We may generally set aside the interesting but complicated literature about whether God can create a surpassable world, while endorsing the more modest conclusion that every universe that God creates will at least have the capacity for the most-valuable goods. I’m not sure what the argument would be that the prior probability that a being that would intentionally fine-tune \( \alpha \) is much lower than the prior probability of such a being, defined also such that if it values life per se, then it would value more life more. Recall that we are imagining God to be morally good; this suggests, given the plausible assumptions about axiology earlier in this paragraph, that God would also want life to exist in other universes.

Moreover, traditionally, some theist philosophers have argued that God instantiates a kind of valuable simplicity. Theists may affirm, then, that God is at least as simple as is metaphysically possible for God to be. Granted, we are assuming a fairly minimal definition of “theism,” and so one might wonder whether we should expect this morally good fine-tuner to be simple. But one might reply that a simple God has a higher prior probability, all else equal, than a complex God, given the rules for the probability of a conjunction. Such considerations give us at least some reason to expect, given theism, that God will not generate a host of superfluous, lifeless universes. If such universes would be valueless, then this is prima facie reason to think that God wouldn’t generate such universes. And God’s simplicity might also imply that God will produce universes from the same blueprint; God will not needlessly randomize these universes’ constants. In general, if (1) all the universes will have the same cosmic features and (2) God wants to fine-tune at-least-one universe for life, then it will follow that (3) all the universes will be fine-tuned for life.

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57Here, Thomas P. Flint’s (Divine Providence, 51ff.) distinction between possible and feasible universes is instructive. See also Swinburne (The Existence of God, 99–106) for why life-forbidding universes would be pointless for God.
58E.g., Howard-Snyder and Howard-Snyder, “How an Unsurpassable Being Can Create a Surpassable World.”
Someone might object here that there are surely some valuable universes that don’t contain (intelligent) life. For example, universes that contain happy moral patients (but not moral agents) will be universes that contain axiological goods but no moral evils. And even universes without any life in them at all might be valuable, at least in that they contain no severe axiological evils, such as suffering. To the first point, I reply that non-fine-tuned universes generally probably will not even contain conscious, non-intelligent life; they are likely to be black holes or maximally entropic. Therefore, a good God will still probably fine-tune them for life. To the second point, I reply that anyone who rejects the Logical Problem of Evil will affirm that some universes containing inscrutable evils are better than universes containing no life at all. Unless the naturalist can argue that the Problem of Evil is cogent in this universe, then for all we know, every universe that exists is one in which the goodness realized by the existence of creaturely lives outweighs the evil realized by suffering in those lives, and would be better than a lifeless universe. Thus in a sense, this objection is another version of the Problem of Evil, and in turn, part of a distinct debate.

Someone might also object here that God’s simplicity would imply that God will produce only a singleton-universe, instead of any kind of multiverse. I reply that this conclusion—that God will produce only a singleton-universe—may be true. Yet recall, our m-theist simply holds that God will fine-tune any universes that exist. The m-theist does not positively insist that we live in a multiverse. If scientists claim to have gathered evidence that we live in a multiverse, then at most, this simplicity argument would be independent evidence against theism, not an argument against m-theism in particular. But few have argued that a multiverse simpliciter (without some hypothesis about whether these universes permit life) would be a rebutting defeater against theistic arguments.

I have argued that considerations about God’s moral goodness, preference for life, and simplicity imply that \( P(T_M|T) \) is not very low, that is, that a theist shouldn’t be extremely surprised to learn that God would fine-tune any universe that exists. Still, it is possible to argue that God actually would have reason to produce a set of universes that are not fine-tuned for life. Swinburne writes the following:

Most universes in a multiverse will not be conducive to the emergence of intelligent life, let alone human life. So does God have any reason for making universes not so conducive? I suggest that many universes are beautiful things in themselves, great works of art, even if bereft of any life. So certainly God has some reason to produce all those other universes.

My first replies are the aforementioned appeals to divine simplicity, preference for life, and moral goodness. Furthermore, one can make the case

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60I thank Mark C. Murphy for suggesting a similar point here.
61The closest would be Swinburne, “Bayes, God, and the Multiverse,” 116.
that *pace* Swinburne, universes not fine-tuned-for-life will also lack aesthetic value. For example, many or most such universes will simply be black holes, or be maximally entropic, or comprise repetitive big bang, big-crunch cycles, or lack any kind of interesting chemistry.\(^6\) So a good God, again, will have no obvious reason to produce universes that are not fine-tuned for life.

Moreover, recall that we are imagining M-INDEXICAL as an argument that ultimately supports the existence of a morally good God. If so, then given the choice between creating universes with only aesthetic value, versus creating universes with aesthetic and moral value, a morally good God will be more likely to choose the latter. I conclude, then, that God is not extremely unlikely to choose to fine-tune all the universes in the multiverse, instead of simply fine-tuning some universes or others. I suggest that we might make the following estimate: \(P(T_M^*|T) \geq 10^{-6}\). That is, if you knew that theism *simpliciter* was true, then it would not be extremely irrational to believe that m-theism was true.

If I’m right about the epistemic relationship between \(T\) and \(T_M\), then we can easily reformulate INDEXICAL from above as follows. At this point, let us hazard some rough-estimates for these probabilities:

\[
\begin{align*}
(L_N) \quad & P(L_\alpha^*|N) \leq 10^{-20} \quad \text{(Naturalism strongly predicts no-life-permission-in-\(\alpha\).)} \\
(L_{TM}) \quad & P(L_\alpha^*|T_M) \geq 10^{-2} \quad \text{(M-theism doesn’t strongly predict no-life-permission-in-\(\alpha\).)} \\
(M_T) \quad & P(T_M^*|T) \geq 10^{-6} \quad \text{(M-theism, given theism, is not very improbable.)} \\
(L_T) \quad & P(L_\alpha^*|T) \geq 10^{-8} \quad \text{(\(\therefore\): Theism doesn’t strongly predict no-life-permission-in-\(\alpha\).)} \\
\end{align*}
\]

\(P(T) + P(N) = 1\) (Assume: Theism and naturalism exhaust the possibilities.)

\[
\therefore P(T|L_\alpha^*) = \frac{P(L_\alpha^*|T)P(T)}{P(L_\alpha^*|T)P(T) + P(L_\alpha^*|N)P(N)} \quad \text{\(\therefore\): This form of Bayes’s Theorem applies.)}
\]

\(B_T) \quad & P(T) \geq 10^{-9} \quad \text{(Theism is not overwhelmingly background-improbable.)} \\
(B_N) \quad & P(N) \leq 1 - 10^{-9} \quad \text{(Naturalism is not overwhelmingly background-probable.)} \\
(C) \quad & P(T|L_\alpha^*) \geq 0.99 \quad \text{(\(\therefore\): Theism, given life-in-\(\alpha\), is very probable.)}
\]

\(^6\)E.g., Collins, “The Teleological Argument,” §2.3.2.
Now why have I gone to the trouble of detouring through $T_M$ to get to $T$? The answer is that this detour will clearly demonstrate the failure of the Multiverse Objection against M-INDEXICAL. In brief, while IO might suggest that we give a low estimate to the probability of life-permission-in-$\alpha$ given theism, when we notice that theism doesn’t render $m$-theism very improbable, we should conclude that the probability of life permission in $\alpha$ given theism simpliciter isn’t that low after all.

Observe that there are two sorts of multiverse-hypothesis worth considering:

$M_s$: There is a multiverse simpliciter, which may or may not comprise universes with varying cosmic-features.

$M_v$: There is a multiverse comprising universes with varying cosmic-features.

I will argue in the rest of this section that while $M_s$ may be true, a multiverse simpliciter is irrelevant to the epistemic probability of m-theism. And while $M_v$ might lower the probability of m-theism, to affirm $M_v$ would beg the question against the (m-theist) proponent of M-INDEXICAL; there is no reason yet for the m-theist to believe in the varied multiverse.

A. The Multiverse Simpliciter

As TUR reveals, hypothesis $M_s$ is a mere ignoratio. Why should the mere fact that there are many other universes change the epistemic probability that this universe will life? And if many expert-sharpshooters fire at you and all miss, then you should be surprised, even if you know that many other people are the targets of firing squads today. Thus, learning that there is a multiverse simpliciter shouldn’t change our estimate of the posterior probability of theism given $L_\alpha$.

Manson and Thrush criticize TUR on several grounds. Two such grounds are simply old objections to fine-tuning arguments in general, and so I will set them aside here. More interesting, however, is their analogy with a “This-Planet Reply” (“TPR”):

[When] it comes to explaining the fitness of the Earth for life, accounts that appeal to the vast number of planets in our universe . . . surely are not to be faulted for failing to explain why this planet is the fit one. Clearly [TPR] is . . . no good because when we set aside all of the features of the Earth that are essential to its ability to produce living creatures . . . there is otherwise nothing special about it.

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64Cf. White, “Fine-Tuning and Multiple Universes,” §VII.

65That is, the “other forms of life” and the “more fundamental law” objections, the latter of which I discussed above in considering the Essentialist Objection. See Manson and Thrush, “Fine-Tuning, Multiple Universes, and the ‘This Universe’ Objection,” 74ff.

66Manson and Thrush, “Fine-Tuning, Multiple Universes, and the ‘This Universe’ Objection,” 73.
Manson and Thrush do not say much more about what exactly is wrong with TPR, although I share their intuition that Earth’s life-permission doesn’t seem to demand an explanation. My suspicion, however, is that we conclude this because we can look around our own universe and see that the vast majority of planets are ill-suited to life; we recognize that it would be unlikely that God would select exactly this planet to fine-tune but not the others. Analogously, if we knew already that God was only going to fine-tune one universe, then we would understand how MO could succeed. It would greatly lower the probability that God would select \( \alpha \) to fine-tune. Thus IO seems to succeed against TPR, if we are trying to defend standard theism instead of m-theism. There is indeed nothing special about Earth itself, so it’s a priori unlikely that God would select exactly this planet (and few others) to fine-tune.

In reply, as noted, we don’t know yet why God would set out only to fine-tune one universe. To the contrary, I showed above, given that God exists, it’s not extremely unlikely that God will decide to fine-tune all universes. So whether \( M_s \) is true is irrelevant to the premises of M-INDEXICAL. “Yes, there is a multiverse,” says the m-theist, “and as far as I know, God has fine-tuned all universes in the multiverse.” That, I think, is the problem with Manson and Thrush’s TPR-analogy; we can see now that most planets are not fine-tuned for life, but we cannot see that most universes are not fine-tuned for life. If Earth and the Sun were the only items in the world, then TPR might not be persuasive.

Someone might then finally argue that by sheer probability, it’s unlikely that all the universes in the multiverse would end up life-permitting. This is essentially to defend the claim \( M_v \), so we turn to that claim now.

B. The Varied Multiverse

As noted, if we knew that there was a varied multiverse, such that different universes had different sets of cosmic features, then we might have reason to reject M-INDEXICAL. God would have inexplicably created many life-forbidding universes. (In the analogy Russian Roulette, if you already knew that your colleagues had been killed, you would then reject the hypothesis that your friend had tampered with all five of the revolvers.)

The problem with this version of MO, however, is that we simply don’t know whether \( M_v \) is true. To baldly assert that it is would beg the question against the proponent of M-INDEXICAL, because it begs the question against m-theism. It simply assumes that there is no M-God: no being that would fine-tune all the universes in the multiverse. If we ever (somehow!) observed a life-forbidding “parallel” universe, then that would falsify m-theism. But that obviously hasn’t happened yet.

Suppose, then, that the proponent of MO argues by sheer probability that most universes in the multiverse aren’t fine-tuned for life. As before, this would only be cogent if we had already learned that m-theism is false. But of course, whether m-theism is true is exactly what’s at issue. Therefore, to affirm \( M_v \) begs the question against the proponent of M-INDEXICAL.
(By analogy, suppose that two fifty-two-card decks have been printed: one standard deck and one defective deck with fifty-two copies of the Ace of Spades. I don’t know which of the two I hold in my hand. It would beg the question to argue that because it’s unlikely that every card is the Ace of Spades, I probably hold the standard deck.) Again, we may, someday, observe other universes and find them not to be fine-tuned for life. But until that happens, MO in its present form begs the question.

Last, the critic of M-INDEXICAL might invoke specific multiverse-hypotheses in order to collect evidence for M_V, not just for M_S. A full discussion of this possibility would take up more space than we have here. But for now, simply note that neither the Many-Worlds Interpretation of quantum physics, nor the Inflationary Multiverse hypothesis, entails a varied multiverse. As noted above, the former simply contains no provision for variable physical constants and laws. The latter hypothesis, at least, might strongly imply a varied multiverse given naturalism. But as before, to make that supposition (with respect to any multiverse-hypothesis) would be to beg the question. The m-theist explains that according to her hypothesis, God fine-tuned all the universes that were produced by the inflationary process.

C. Return to the Lottery Analogy

To illustrate my points in one more way, suppose that there is a lottery and one million tickets are sold, one each to one million people. Smith learns that her ticket displays the winning number. She is initially justified in being surprised at this result. Suppose, however, that she learns that there are two possible computer errors that might have occurred, errors that are jointly incompatible and that each have a ¹⁄₁₀ probability:

(E_1) All tickets will be printed containing the winning number (instead of whatever other number the ticket would have).

(E_2) A single randomly-selected ticket will be printed containing the winning number (instead of whatever other number it would have).

Upon learning that she won, Smith should conclude that E_1 probably happened, not that E_2 probably happened. For even if E_2 had occurred, it’s unlikely that her ticket would be the recipient of the error. But given a ¹⁄₁₀ probability:

67This is analogous to Frank Arntzenius’s example, related in Weisberg, “Firing Squads and Fine-Tuning,” 813–814. In Arntzenius’s firing squad example, there are two types of guns—Type A and Type B—and the former are much more accurate than the latter. If 144 shots miss you, then you should conclude that the firing squad holds guns of Type B; one cannot cogently argue that we have already observed that the firing squad holds guns of Type A and so you got extremely lucky.


69See the essays in Carr (ed.), Universe or Multiverse, including Tegmark, “The Multiverse Hierarchy” and Smolin, “Scientific Alternatives to the Anthropic Principle.”

70Again, this is reminiscent of the Arntzenius-style example in Weisberg, “Firing Squads and Fine-Tuning,” 813–814.
chance that *all* tickets would receive the winning number, that hypothesis is more reasonable than the hypothesis that she won by chance.\(^71\) Again, our assumption of the \(\frac{1}{10}\) probability is what allows our argument to avoid the original Lottery Analogy objection to FTA. Such an objection simply ignores the role of the prior-probability of theism. Therefore, to reject Smith’s conclusion (that \(E_1\) occurred), the only option left is to challenge the assignment of prior probability that one of those errors should occur. We close by turning to that analogous objection to M-INDEXICAL.

VI. Against the Unfriendliness Objection

I have been assuming that if M-INDEXICAL is no-less-cogent than the standard FTA, and MO fails against M-INDEXICAL, then MO fails against the standard FTA. However, it might be that I am wrong about the background-probability of theism, or I am wrong about the probability of m-theism *given theism*. That is, someone might argue that

\[
(M_T) \quad P(T_M | T) \geq 10^{-6}
\]

or

\[
(B_T) \quad P(T) \geq 10^{-9}
\]

is unjustified. The reason for holding either of these positions would be, roughly speaking, the *Unfriendliness Objection* ("UO"): the universe may appear to be very unfriendly to life. The vast majority of it is empty space, and only very few of the planets seem to permit life. Perhaps this fact is relatively predictable given non-multiverse theism; God apparently just wanted one small corner of reality to permit life. But if God would really fine-tune *every* universe in the multiverse, then maybe it should be surprising that he wouldn’t create a universe that was friendly to life from end to end. Similarly, if the proponent of fine-tuning arguments is correct that life is very “counternomically fragile”—that if the constants, laws, and conditions had been slightly different, life would be impossible—then this might also be surprising given theism. Why not create a form of life that could have survived many other changes, perhaps by creating a set of non-physical minds?

Now, as explained earlier, I’m not interested here in defending fine-tuning arguments in general against all objections, nor am I interested in defending theism *per se* against all counter-arguments. My purpose has been to show that M-INDEXICAL is no worse than standard fine-tuning arguments, and avoids MO. Therefore, I won’t defend \((B_T)\) from UO. The unfriendliness-to-life of the universe is presumably already “priced into” our degree of justification in believing in theism *simpliciter*. So I’ll leave it to other authors to respond to such objections.\(^72\) Put another way, the Problem of Evil, the “Problem of Unfriendliness to Life,” and the “Problem of Counternomic Fragility” are challenges to our *independent* confidence in

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\(^71\) Landsman, “The Fine-Tuning Argument,” §5.

\(^72\) Cf. Dougherty and Poston, “A User’s Guide to Design Arguments.”
theism before encountering fine-tuning in particular, not challenges to the premises of fine-tuning arguments per se.

M-INDEXICAL differs from standard indexical fine-tuning arguments by its subject of m-theism and its corresponding premise

\[(M_i) \quad P(T_M | T) \geq 10^{-6}.\]

Therefore, I will simply defend \((M_i)\) against a version of UO. I will offer four types of reply.

A. Probabilities

The main idea behind UO is to argue that the general unfriendliness to life of the universe makes \(T_M\) far less likely than \(T\). Or, in the language of probability, where \(\neg F\) is the fact that the universe is generally unfriendly to life,

\[P(T_M | T & \neg F) < P(T_M | T).\]

Now, how much lower would \(P(T_M | T & \neg F)\) have to be than \(P(T_M | T)\) in order for \(\neg F\) to produce a powerful argument against \((M_i)\)? In the original statement of M-INDEXICAL, I assigned probabilities generously to the naturalist. A more neutral assignment would make it very difficult indeed for \(\neg F\) to seriously threaten \(T\), so we’ll continue with the generous assignments:

M-INDEXICAL

\[\begin{align*}
(L_N) & \quad P(L_\alpha | N) \leq 10^{-20} \quad \text{(Naturalism strongly predicts no-life-permission-in-\(\alpha\).)} \\
(L_{TM}) & \quad P(L_\alpha | T_M) \geq 10^{-2} \quad \text{(M-theism doesn’t strongly predict no-life-permission-in-\(\alpha\).)} \\
(M_i) & \quad P(T_M | T) \geq 10^{-6} \quad \text{(M-theism, given theism, is not very improbable.)} \\
(L_T) & \quad P(L_\alpha | T) \geq 10^{-8} \quad (\therefore \text{Theism doesn’t strongly predict no-life-permission-in-\(\alpha\).})
\end{align*}\]

\[P(T) + P(N) = 1 \quad \text{(Assume: Theism and naturalism exhaust the possibilities.)}\]

\[\therefore P(T | L_\alpha) = \frac{P(L_\alpha | T)P(T)}{P(L_\alpha | T)P(T) + P(L_\alpha | N)P(N)} \quad (\therefore \text{This form of Bayes’s Theorem applies.})\]

\[\begin{align*}
(B_T) & \quad P(T) \geq 10^{-9} \quad \text{(Theism is not overwhelmingly background-improbable.)} \\
(B_N) & \quad P(N) \leq 1 - 10^{-9} \quad \text{(Naturalism is not overwhelmingly background-probable.)} \\
(C) & \quad P(T | L_\alpha) \geq 0.99 \quad (\therefore \text{Theism, given life-in-\(\alpha\), is very probable.})
\end{align*}\]

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\(^{73}\)Collins, “The Teleological Argument,” §§2.3 and 3.3.
And if we are questioning \((M_T)\), then which alternative to \((M_T)\) would sufficiently reduce the posterior probability reported in \((C)\)? Interestingly, even
\[
(M_T') \Pr(T_M | T) \geq 10^{-9}
\]
is enough to keep the posterior probability of theism over 0.5. So the critic of M-INDEXICAL owes us an explanation of why, upon learning that theism is true and that \(\neg F\), we should be extremely certain (more than \(1 - 10^{-9}\) certain) that M-God doesn’t exist. We would be extremely confident that we could guess whether God would have a reason to make a multiverse of mostly life-permitting but life-unfriendly space. Therefore, while it might be surprising that M-God would create a universe that is mostly hostile to life, it is not surprising enough to seriously threaten M-INDEXICAL.

B. Return to Standard Fine-Tuning Arguments

Note that UO can also be offered against the standard FTA. Presumably, an omnipotent God could have merely fine-tuned the region of space around Earth, but God instead (as far as we know) chose to fine-tune the entire universe.\(^\text{74}\) If God really wanted a life-permitting universe, then why did God not also create a positively life-friendly universe? Again, this objection is available against standard fine-tuning arguments, so at least it doesn’t make M-INDEXICAL any dialectically worse than the original. Thus I can sustain my original project: to show that M-INDEXICAL makes gains over standard fine-tuning arguments, but comes with no disadvantages, and completely avoids MO because it underwrites a successful TUR.

C. Is Our Universe Unfriendly to Life?

Interestingly, it’s not obvious that the universe we observe, in general, is unfriendly to life. I grant that the solar system does not comprise countless miles of sunny fields and happy kittens, but it could be far worse. There could be many nearby quasars blasting everything with gamma radiation; there could be a huge cloud of comets pelting Earth every few years; there could be a series of closely-packed, evenly distributed supermassive black holes. At the very least, I am not sure why we could confidently say that the nearby region of the universe is very unfriendly to life.

We also don’t know whether the unobserved universe is unfriendly to life. Suppose the objector is correct that M-God, if he exists, would also make most of the universe life-friendly. If so, then it would beg the question to argue that because there is so much universe we have not observed, probably, most of it is life-unfriendly, or that the density of life-unfriendly regions is greater than the density of life-friendly regions. After all, we have not observed the rest of the universe, and if the universe is infinite in spatial extent (as it is very likely to be),\(^\text{75}\) then we have only observed

\(^{74}\)For example, God could have created a life-forbidding universe but used miracles to ensure the existence of life anyway. Here, cf. also Narveson, “God by Design?” 97–99.

\(^{75}\)Greene, The Hidden Reality, 25.
an infinitesimally small proportion of it. If we grant the objector’s claim that God would make most of the universe life friendly, then only given the denial of m-theism will we be justified in concluding that the rest of the universe is life-unfriendly.\textsuperscript{76}

Indeed, suppose that the universe is infinitely expansive.\textsuperscript{77} Then there may be infinitely many life-friendly regions, infinitely many life-neutral regions, and infinitely many life-unfriendly regions, and all of these infinities might be equicardinal. As long as God has created infinitely many life-friendly regions, then arguably, God could have done no better, and so this is still compatible with God’s moral goodness.\textsuperscript{78} Given that God will create infinitely much life-friendly space, it is still not obvious that a good God would be certain to ensure that all of the universe was generally life-friendly. It is also not obvious that a good God would be certain to ensure that life-friendly areas were denser than life-unfriendly areas within this infinite space, again given that God has at least created infinitely much life-friendly space. In turn, if infinitely much of the universe is life-friendly and infinitely much is life-unfriendly, of equal density, then we are just as likely to find ourselves in a generally life-unfriendly region as in a life-friendly region. So our observations are consistent with God’s ensuring that there is infinitely much life-friendly universe.

D. “Life-Unfriendly” versus “Life-Forbidding” Universes

There are reasons to create a mostly life-unfriendly universe that crucially do not constitute reasons to create a multiverse comprising lots of life-forbidding universes. These reasons, therefore, constitute explanations for why God might fine-tune all universes but not make our universe very friendly to life. The key points here are that life-forbidding universes, if they existed, would be causally closed to us, and that there won’t be any strictly-speaking life-forbidding regions of space in our universe, on the assumption that we’re really talking about universal laws and constants. In contrast, life-neutral or life-unfriendly regions of space are in-principle causally open to us. Granted, objects outside of our light-cone are causally cut off from us, barring faster-than-light travel. But in that case, they are more like other universes in a multiverse,\textsuperscript{79} and (once again) we simply do not know whether they are life-friendly, neutral, or unfriendly. In turn, all

\textsuperscript{76}Granted, the objector can propose an induction here, arguing that probably, the rest of the universe is as life-unfriendly as our solar system. But the Williams-Stove solution to the Problem of Induction does not straightforwardly license an induction across an infinite set, and Armstrong’s solution doesn’t seem to generate the right sort of law to allow us to predict that most of the universe is life-friendly. Thus we have no non-question-begging reason to believe that most of the universe is life-unfriendly. See Stove, The Rationality of Induction, and Armstrong, “What Makes Induction Rational?”

\textsuperscript{77}Greene, The Hidden Reality, 25.

\textsuperscript{78}This is reminiscent of multiverse-defenses against the Problem of Evil; cf. Kraay, “Theism, Possible Worlds, and the Multiverse.”

\textsuperscript{79}Indeed, Greene (The Hidden Reality, ch. 2) calls this the “quilted multiverse.”
we can say is that as far as we can tell, the regions causally open to us are life-neutral at best.

Why, then, would God create causally available, but life-neutral or life-unfriendly regions? There are several plausible answers. Here is a disjunction of possibilities: There is something (axiologically or aesthetically or instrumentally-to-God) good about:

- humans’ expanding into and colonizing other regions of the universe(s); or (inclusive)
- humans’ valuing Earth itself as a special gift and not considering it to be fungible; or
- a universe in which humans think their existence is miraculous or special in some way; or
- a universe in which God’s existence remains at-least somewhat hidden or unobvious,\(^80\) or
- a huge, majestic, diverse universe, instead of repeated copies of Earthlike planets.

Of course, each of these disjuncts is, itself, a disjunction of many hypotheses, which we lack the space here to investigate in detail. It’s not extremely implausible that at least one of these disjuncts is true, and so it’s not unreasonable to affirm at least that

\[(M_{T'}) \Pr(T|M) \geq 10^{-9}.\]

A related objection to TUR would go as follows. Someone might argue that Earth’s being fine-tuned for life is rendered much more likely on the hypothesis that God, if God exists, will fine-tune every planet that is possible to fine-tune.\(^81\) Since it was unlikely (on the hypothesis that there is no God fine-tuning every planet) that any given planet, including Earth, would permit life—Earth might have been substantially closer or farther from the Sun, for example—perhaps the hypothesis that God will fine-tune every planet is strongly confirmed by Earth’s being fine-tuned. But that hypothesis seems implausible. I reply that it might be implausible for two reasons. First, it might be implausible because it simply seems implausible that God would care about fine-tuning all the planets. For reasons given in the previous paragraph, I agree that it seems implausible that God would care very much about ensuring that all planets are fine-tuned; those reasons explain why we are probably not justified, on the basis of Earth’s life-permission, in predicting that all planets would be fine-tuned. Second, it might be implausible because we observe now that the vast majority of planets are not fine-tuned for life. If we accept FTA, then this would tell

\(^80\)See, e.g., Poston and Dougherty, “Divine Hiddenness and the Nature of Belief,” for a recent statement of this sort of defense.

\(^81\)I thank an anonymous referee for this suggestion.
us that God, for whatever reason, did not care about fine-tuning all the planets for life. If this is puzzling, given m-theism, then I recur again to
the considerations in the present subsection. God may have reasons for permitting planets that are inhospitable to life, reasons that wouldn’t sug-
gest corresponding reasons to permit universes that forbid life.

I conclude that UO is no-more-powerful against M-INDEXICAL than it is against standard fine-tuning arguments. At least, it is not powerful
everlough to render \( P(T_M|T) \) sufficiently low to avoid the conclusion that theism is more-likely-than-not, given our other assumptions.

VII. Summary and Conclusion

Our dialectic began with a standard, existential FTA against which the naturalist offered the Multiverse Objection (“MO”). We saw that the theist
can replace the standard, existential FTA with INDEXICAL, thereby allowing for the This-Universe Reply (“TUR”) to MO. This replacement required
refuting the Essentialist Objection (“EO”) and the Descriptivist Objection (“DO”). In turn, our naturalist offered the Indifference Objection (“IO”) to INDEXICAL. To avoid IO, our theist modified INDEXICAL to become M-
INDEXICAL. Because the Unfriendliness Objection (“UO”) can be refuted, and M-INDEXICAL refutes IO, M-INDEXICAL fully avoids MO at no dialectical
cost. By analogy, if you knew your friend might be able to tamper with all the revolvers in Russian Roulette, then you might be justified in hypo-
thesizing that she had indeed done so, even before you knew whether your colleagues had been killed.

We have seen that the standard FTA can be transformed, with no loss of cogency, into the indexical FTA, and the indexical FTA avoids MO. I
conclude, then, that theists should use the indexical FTA in place of the standard FTA. There may be good objections to the standard or indexical
FTA, objections that are beyond the scope of this paper. But the Multiverse Objection should be abandoned.82

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References


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