

DIVINE FINE-TUNING VS. ELECTRONS IN LOVE

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ABSTRACT

I offer a new objection to the fine-tuning argument for God's existence, which arises from the metaphysical possibility of alternative psychophysical laws that permit a wider range of physical entities to have minds. Section 1 presents the fine-tuning argument, according to which divine creation best explains why the physical constants permit intelligent life. Section 2 presents the objection that under sufficiently mind-friendly psychophysical laws, any physical constants permit intelligent life. Section 3 explains that proponents of the argument can't deny the metaphysical possibility of such psychophysical laws because they must accept a non-physical God with a mind. Section 4 considers a version of the argument restricted to universes with actual psychophysical laws, and responds that there's no reason God would favor such universes.

I. THE FINE-TUNING ARGUMENT FOR GOD'S EXISTENCE

Here's a simple probabilistic version of the fine-tuning argument:¹

[Fine-Tuning] For intelligent life to exist (as is the case), the fundamental physical constants must have values within very narrow life-permitting ranges.

[Divine Probability-Raising] If Fine-Tuning is true, it's more probable that God set the values of the constants than that they took those values without God's intervention.

[Conclusion] God probably exists.

I'll discuss the premises and the reasons for accepting them in more detail.

Fine-Tuning includes both the easily verifiable claim that intelligent life actually exists, and the scientifically supported claim that this requires the fundamental physical constants to take values within a very narrow range. These constants include the cosmological constant, the strong nuclear force, the electromagnetic

force, and the difference in mass between protons and neutrons. The strong nuclear force, which holds protons together in the atomic nucleus despite their having positive charge, provides a representative illustration. Robin Collins writes that "a 50 percent decrease in the strength of the strong force, for instance, would undercut the stability of all elements essential for carbon-based life, with a slightly larger decrease eliminating all elements except hydrogen."² Had any of these constants taken slightly different values, the drastic effects on the nature of our universe would have made it impossible for matter to take the complex structure required for things like brains.³

Divine Probability-Raising concerns the low probability of intelligent life without divine intervention, and the higher probability of intelligent life with a God.⁴ I unify these two claims in one premise because the argument depends on the relation between these

probabilities, rather than the value of either one individually. Intelligent life appears improbable without divine intervention because there are so many values the constants could have taken, and so few of these values are life-permitting. So in some intuitive sense, it appears very improbable that the constants could have taken values in the narrow life-permitting ranges just by chance. Whether these intuitive probability assignments are justified is heavily debated.⁵ For now, I'll just grant proponents of the fine-tuning argument that without divine intervention, it would be very improbable for the constants to take values in the narrow ranges.

God's existence makes the existence of intelligent life more probable because minds are necessary for moral value, and a good God would care about creating a morally valuable universe. The argument thus requires attributing some mental states to God—namely whatever benevolent motivational states would lead God to create intelligent life, as well as knowledge of how to do so. For the purposes of the fine-tuning argument, intelligent life exists if there are minds capable of a rich assortment of mental states like ours—in particular, the morally valuable ones. Things that are plausibly regarded as morally valuable, like pleasure, desire-satisfaction, knowledge, friendship, creativity, and love, would be impossible without minds. Even if some kinds of moral value don't require minds, universes without minds would certainly be poor in moral value. To avoid creating such a universe, a good God would set the physical constants to make minds possible.⁶ The values of the constants are evidence for God's existence because intelligent life is necessary for a morally valuable universe, and a good God would create a morally valuable universe. While the intelligent beings we've met have many other properties, such as being carbon-based, cellular, complex, and somewhat squishy, the moral insignificance of these properties renders them unimportant

to the argument. Minds complex enough to support moral value are the important thing because that's what a perfectly good God would care about.

2. THE OBJECTION FROM MIND-FRIENDLY PSYCHOPHYSICAL LAWS

This section attacks the first premise of the argument, Fine-Tuning. Intelligent life is possible under a wide range of physical constants because it's metaphysically possible that psychophysical laws could be much more mind-friendly than those that obtain in actuality. Even if the physical constants permitted no atoms other than hydrogen, the psychophysical laws could permit protons and electrons to instantiate morally valuable mental states including those involved in feeling pleasure, having friends, and falling in love.

The plausibility of Fine-Tuning depends on the metaphysical impossibility of psychophysical laws much more friendly to minds than those of our world. Only on the assumption that psychophysical laws must have their actual values is it true that intelligent life couldn't exist in a universe where the strong nuclear force is at less than 25 percent of its actual value and atoms more complex than hydrogen can't be formed. Actual psychophysical laws require complex biological structures like brains for mental states to be realized. Universes with no atoms larger than the one-proton, one-electron combination of hydrogen lack the raw material that these biological structures require.

Under more mind-friendly psychophysical laws, protons and electrons themselves could have minds like ours.⁷ These laws could dictate that these particles have sensory experiences of all the forces other particles exert on them, with the forces most strongly affecting them giving rise to the psychology of belief and then intentional action.⁸ Protons and electrons could yearn to be together, feeling delight at the presence of the other as their opposite charges drew them closer. When they formed a

hydrogen atom, they could fall in love. Whenever two electrons were a prime number of centimeters apart, they could have the mental states involved in heartfelt communication about their histories. Every subsequent time they were a whole number of meters apart, they could fondly remember each other. The remaining strong nuclear force between protons, despite being too weak to bring them into one atomic nucleus, could at its moments of greatest intensity realize a tantalizing but forbidden attraction. When any six particles formed a regular hexagon, they could share awe at the grandeur of the universe.⁹

While such mind-friendly psychophysical laws might seem strange, their similarity to our world's physical laws makes them less strange in a way than the actual world's mind-unfriendly psychophysical laws. Actual fundamental physical laws concern properties and relations of microphysical things like protons and electrons, not larger things like people, brains, or neurons. Otherworldly psychophysical laws giving protons and electrons their own mental states would in this way more closely resemble actual physical laws than actual psychophysical laws do. Our world's psychophysical laws, which give mental properties only to very complex structures, are the unusual case. So the idea of psychophysical laws that have fundamental particles as *relata* shouldn't in itself seem strange—that's how the fundamental laws of our universe usually are.

Throughout this paper, I'll assume that panpsychism is actually false, and actual psychophysical laws are as mind-unfriendly as they seem. What happens if this assumption isn't true, and our world's protons and electrons have microphysical romances? Our own universe then becomes a counterexample to Fine-Tuning, defeating the argument in spectacular fashion. Fine-tuned physical constants allowing for bodies and brains like ours then aren't needed for love and other valuable mental states to exist even in actuality.

Collins characterizes the kind of intelligent beings whose existence divine fine-tuning is supposed to explain as “finite, vulnerable, embodied moral agents” and as “embodied conscious being[s] that can make morally significant choices.”¹⁰ Such beings can easily be realized in universes with the strong nuclear force at less than 25 percent of its actual value and mind-friendly psychophysical laws. Microphysical particles are spatially finite, and sufficiently mind-friendly psychophysical laws will give them whatever sort of finite minds one pleases. As for vulnerability, microphysical particles are physically vulnerable to destruction in nuclear reactions or in interactions with antimatter. Psychophysical laws that allow them to love will also make them emotionally vulnerable—a proton that is attracted to an electron may be heartbroken if that electron goes away with another proton. And if having a material body is sufficient for embodiment, particles in such a world clearly will be embodied.

While moral agency may seem to present more substantial problems, it raises no special difficulties apart from those applying to actual human moral agency. Human action-explanations involve mental properties like desire that are realized by the physical properties of our brains. These physical properties cause the behavior and emotional phenomenology of love. In a universe with more permissive psychophysical laws, the same mental properties could be realized by physical properties like charge. The psychophysical laws could be set up so charge would not only play a causal role in moving the protons and electrons toward each other, as it does in our world, but also give rise to the emotional phenomenology of love. Microphysical particles could then perform loving acts that feel like the loving acts of our world. If we regard loving someone else as a morally praiseworthy motivation to act for that person's benefit, protons and electrons who pull each other together into happier situations because of their charge

will be doing praiseworthy deeds. Psychophysical laws could also allow other causal interactions between particles to have the psychology and phenomenology of ignoble motivations like envy, selfishness, and hatred. Acts from these motives that harm others are immoral. Psychophysical laws can be set to make possible morally significant choices, for both good and evil.

Moral agency might be taken to include free will, so it's worthwhile to consider whether microphysical particles could have free will under mind-friendly psychophysical laws. While it's difficult to explain how microphysical particles could have libertarian free will, it's similarly difficult to explain how we could have it. The physical complexity of human brains doesn't in any obvious way support libertarian free will. Without explaining why we have libertarian free will and microphysical particles can't, proponents of the fine-tuning argument gain nothing by replying that minds with libertarian free will aren't possible without fine-tuning. Whatever the situation with libertarian free will may be, compatibilist free will is available to microphysical particles. If compatibilist free will merely consists in our actions being caused in some way by some set of mental states we're determined to have, microphysical particles with the appropriate mental states can have it as well.

This discussion of free will suggests a general response to objections that even mind-friendly psychophysical laws couldn't allow microphysical particles to have some mental property, whether it's intentionality, phenomenal consciousness, moral agency, or love. If it seems astonishing that simple physical entities like electrons could have the mental property, consider how astonishing it is that even complex physical entities like you can have the mental property. While you have the mental property because of neuroscientific facts including those about neurons and brain chemicals, electrons have the mental

properties because of physical facts including those about fields and relations to other particles. In any large universe, enough will be going on for such facts to realize whatever mental properties one might care about, given appropriate psychophysical laws. There may be something astonishing about electrons with minds, but if different psychophysical laws are possible, it's the same kind of thing that's astonishing about brains with minds. It's just that with electrons, the astonishing thing stands out more prominently, because it isn't concealed behind the complexities of neuroscience.

Our universe is notable not only for having the mind-friendly physical constants that defenders of the fine-tuning argument point out, but in having mind-unfriendly psychophysical laws. These laws could have been more mind-unfriendly still, as David Chalmers's zombie arguments suggest.¹¹ The psychophysical laws of zombie worlds, which don't allow *qualia* to be realized even by brains as physically complex as ours, are even less mind-friendly than those of our world. But there's plenty of room for psychophysical laws to be more mind-friendly than ours as well. Universes whose physical constants prevent any particularly complex structures from forming still have enough structure to instantiate minds if the psychophysical laws are mind-friendly enough.¹² The large region of modal space with mind-friendly psychophysical laws permitting happy microphysical particles reveals intelligent life not to be an astonishingly improbable thing demanding a divine explanation, as it might be if Fine-Tuning were true.

3. IF A NON-PHYSICAL GOD HAS A MIND, MIND-FRIENDLY PSYCHOPHYSICAL LAWS ARE POSSIBLE

This section considers the response that the non-actual psychophysical laws invoked in the last section, which allow protons and electrons to fall in love, are metaphysically

impossible. As I'll argue, this response is unavailable to proponents of the fine-tuning argument. They're committed to the existence of a non-physical God with a mind, which leaves them unable to defend restrictions on which physical entities can have minds. Denying that God has a non-physical mind won't help, as Divine Probability-Raising is only plausible if God is a non-physical being with the mental states for motivation to create a world with intelligent life.

The objection from mind-friendly psychophysical laws straightforwardly fails if these laws are metaphysically impossible. If actual psychophysical laws have metaphysical necessity, it's metaphysically impossible for microphysical particles to have mental states. That actual psychophysical laws are necessary is hotly debated and forcefully defended.¹³ Those who balk at the idea of things as simple as protons and electrons falling in love will find this a natural way to respond to the objection. And even those who don't accept the metaphysical necessity of actual psychophysical laws might want to forbid love between protons and electrons by claiming that no metaphysically possible psychophysical laws permit something that strange.

However, proponents of the fine-tuning argument are in no position to claim that actual psychophysical laws are metaphysically necessary, or even to forbid love between protons and electrons, because they accept a non-physical God with a mind. This commitment makes physicalism about the mind—the best way to explain the metaphysical necessity of actual psychophysical laws—unavailable to them. Since physicalism treats the property of loving someone as a physical property, someone couldn't be in love without having that physical property. God, however, is traditionally understood as a non-physical being with a mind. Love (like other mental properties) can't be identical to a physical property if a non-physical God loves us. It must be able to exist without any physical realizer at all.

So proponents of the fine-tuning argument violate their own theoretical commitments if they insist that mental properties require physical structures more complex than individual microphysical particles.

Theistic commitments to a non-physical God are incompatible with the view that even though psychophysical laws could have been somewhat different, love between subatomic particles is so bizarre as to be metaphysically impossible. Such a view is more moderate than claiming metaphysical necessity for psychophysical laws, but it's similarly unavailable to proponents of the fine-tuning argument. They must accept that the metaphysical constraints on the realization of mental states are so weak that mental states exist with no physical realizers at all in the actual case of God. This leaves no room for objecting to the metaphysical possibility of protons and electrons falling in love. If a non-physical God has mental states (including grand ones, like love of all his creatures), the mental is so unconstrained by the physical that in one actual case, it has no physical realizers at all. Then why can't entities whose physical properties sometimes cause the appropriate motions have the appropriate mental states? A non-physical God with a mind more egregiously violates any physicalist constraints on the mental than protons and electrons with minds, having even less of whatever physical structure is appropriate. From someone who accepts that a non-physical God loves us, rejecting the possibility of love between protons and electrons is nothing more than unjustifiable metaphysical prejudice.

These considerations might lead proponents of the fine-tuning argument to seek different conceptions of God that allow them to maintain the metaphysical impossibility of mind-friendly psychophysical laws. Conceiving of God as a physical being or as lacking mental states might seem like good options. As these conceptions of God don't involve non-physical minds, they're compatible with

the metaphysical necessity of our world's psychophysical laws. But as I'll explain, conceiving of God as physical or as lacking a mind won't save the fine-tuning argument, as it undermines Divine Probability-Raising, which is plausible only if God is non-physical and has mental states that would lead him to favor a world with intelligent life.

Divine Probability-Raising fails if God is a physical being because then he can't set the values of the physical constants.¹⁴ Setting physical constants at will isn't something that physical entities can do. Physical entities come on the scene too late to make decisions about setting the constants, since these constants appear in laws that are supposed to govern their activities, including the activity of setting the constants. Furthermore, genuinely fundamental physical constants aren't contingent on the activity of a particular physical entity in the world.

A God without mental states lacks the properties that make Divine Probability-Raising plausible, such as caring about intelligent beings, wanting to bring about more morally valuable worlds rather than less morally valuable ones, and knowing which physical constants will achieve these goals. It's because of these mental properties that God's existence raises the probability of the constants having life-permitting values.¹⁵ So a God lacking these mental states leaves Divine Probability-Raising unsupported. Negative theology, which avoids attributing positive properties to God, similarly doesn't help the fine-tuning argument.¹⁶ While it avoids non-physical mental properties, it also prevents us from genuinely attributing omniscience and omnibenevolence to God, which are supposed to help explain the values of the constants.

4. THE FINE-TUNING ARGUMENT CAN'T BE REFITTED TO ACTUAL PSYCHOPHYSICAL LAWS

Another response would be to modify the fine-tuning argument by restricting the space

of possibility within which fine-tuning is necessary for intelligent life, ignoring the possible worlds where the psychophysical laws are otherwise. I'll explore this strategy, presenting a suitably modified version of the fine-tuning argument. Doing so reveals why this strategy fails: it requires the implausible assumption that God would create intelligent life only under actual psychophysical laws, and wouldn't do so under mind-friendly ones.

John Leslie offers an analogy that illustrates this response.¹⁷ Suppose a lone fly is sitting on a large, empty area of a wall. Suddenly a shot rings out, and a bullet strikes the fly. Even if the rest of the wall outside the empty area is thick with flies and a stray bullet would likely hit a fly there, it's improbable that a stray bullet in the empty area would hit a fly. This justifies us in attributing the shooting of the fly to a marksman's aim rather than a stray bullet. The wall represents modal space, flies represent universes with intelligent life, the location struck by the bullet represents the actual universe, and the marksman's aim represents God's will. Leslie's message is that if our universe is one of very few with intelligent life in a large region of modal space (like the region that shares actual psychophysical laws), we're more justified in believing that God's intervention set the fundamental physical constants, even if intelligent life is abundant outside that region.

Modified as Leslie's example suggests, the fine-tuning argument becomes the following restricted fine-tuning argument. Modifications to the premises are italicized:

[Restricted Fine-Tuning] For intelligent life to exist *under actual psychophysical laws* (as is the case), the fundamental physical constants must have values within very narrow life-permitting ranges.

[Restricted Divine Probability-Raising] If *Restricted Fine-Tuning* is true, it's more probable that God set the values of the constants than that they took those values without God's intervention.

[Conclusion] God probably exists.

The metaphysical possibility of different psychophysical laws that permit intelligent life doesn't undermine this argument, since Restricted Fine-Tuning has been weakened to make it compatible with such a possibility. The resulting argument nicely fits Leslie's example. The explanandum in Leslie's example isn't just that a bullet hit a fly; it's that a bullet hit a fly in the mostly unoccupied region of the wall. That's what makes it more probable that a marksman aimed to hit the fly than that a stray bullet struck it. Restricted Divine Probability-Raising similarly modifies the explanandum, so that it only involves the existence of intelligent life under mind-unfriendly psychophysical laws. This, according to the restricted fine-tuning argument, should lead us to assign a higher probability to God's having set the microphysical constants.

The trouble with the restricted fine-tuning argument is that Restricted Divine Probability-Raising is much less plausible than its predecessor from the original argument. God's existence doesn't dramatically raise the probability of the conjunction that intelligent life exists and the universe has mind-unfriendly psychophysical laws. Analogous problems didn't appear with the original argument, whose proponents could plausibly argue on grounds of divine omnipotence and omnibenevolence that God would create intelligent life. It's much harder to see why God would create intelligent life specifically in a universe with mind-unfriendly psychophysical laws. As I'll argue, God's power and goodness leave it mysterious why he would do so.

God's omnipotence entails that he could easily create a universe with mind-friendly psychophysical laws if he wished to. If different psychophysical laws are metaphysically possible, an omnipotent being who can choose physical laws as he wishes should similarly be able to choose psychophysical laws as he wishes. It's hard to see why God

might be capable of setting the physical constants to any metaphysically possible values he wished, while being powerless to choose different metaphysically possible values for the psychophysical laws.

God's goodness gives him no motivation to create a world with mind-unfriendly laws, as the mind-unfriendliness of a world's laws is a very implausible candidate for realizing moral value. While many candidates for what makes states of affairs good have been suggested in the history of moral philosophy, nobody has suggested the mind-unfriendliness of psychophysical laws. A loving God wouldn't have any obvious reason to situate creatures in a world where it was hard to have minds. Wanting to set up mind-unfriendly psychophysical laws would be as arbitrary as wanting to set up a universe with a very high gravitational constant. In fact, if quantitative judgments can be made about the likelihood of creating particular universes as the fine-tuning argument requires, God would be much more likely to create a universe with mind-friendly psychophysical laws. Those universes are much more likely to instantiate intelligent life.

To put this criticism in terms of Leslie's example, it's plausible to attribute the striking of the fly to a marksman's aim because striking isolated targets is an intention that can plausibly be attributed to marksmen. That's the sort of thing marksmen like to do. But we have no reason to attribute an analogous intention to God. It's hard to see why God would need or want to create minds specifically in a universe where the psychophysical laws were mind-unfriendly. There's no reason to think an omnipotent being would be constrained by psychophysical laws that lack metaphysical necessity, or that an omnibenevolent being would be dissatisfied with the prayers of devout neutrons who ask him to bless the happy protons and electrons around them.

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NOTES

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1. For well-developed probabilistic versions of the argument, see Jonathan Weisberg, “A Note on Design: What’s Fine-Tuning Got to Do with It?,” *Analysis*, vol. 70, no. 3 (2010), pp. 431–438; and Neil Manson, *Introduction to God and Design*, ed. Neil Manson (London: Routledge, 2003), pp. 1–23.
2. Robin Collins, “Evidence for Fine-Tuning,” in *God and Design*, ed. Manson, pp. 178–199; quoting John D. Barrow and Frank J. Tipler, *The Anthropic Cosmological Principle* (Oxford, UK: Oxford University Press 1986). Moreover, a “change of more than 0.5% in the strength of the strong interaction or more than 4% in the strength of the Coulomb force would destroy either nearly all C or all O in every star,” a scenario under which “the creation of carbon-based life in our universe would be strongly disfavored.” Heinz Oberhummer, Attila Csótó, and Helmut Schlattl, “Fine-Tuning of Carbon Based Life in the Universe by Triple-Alpha Process in Red Giants,” *Science*, vol. 289, no. 5476 (2000), pp. 88–90.
3. For more details, see Robin Collins, “The Teleological Argument: An Exploration of the Fine-Tuning of the Universe,” in *The Blackwell Companion to Natural Theology*, ed. William Lane Craig and J. P. Moreland (Oxford, UK: Wiley-Blackwell, 2009), pp. 202–281.
4. Weaker formulations of both premises are possible on which the values of the constants merely raise the probability of God’s existence, rather than establishing that God probably exists. Such formulations might avoid the objection from mind-friendly psychophysical laws. But since one can remain an atheist by accepting that the argument raises the probability of God’s existence from one exceedingly low value to another, I don’t consider such formulations here.
5. Some argue that since the range of possible values for the constants is unbounded and infinite, positive probabilities of the constants having some value can’t be evenly distributed across it, preventing the probability assignments that the fine-tuning argument requires. See Tim McGrew, Lydia McGrew, and Eric Vestrup, “Probabilities and the Fine-Tuning Argument: A Sceptical View,” *Mind*, vol. 110, no. 440 (2001), pp. 1027–1038; and Mark Colyvan, Jay Garfield, and Graham Priest, “Problems with the Argument from Fine Tuning,” *Synthese*, vol. 145, no. 3 (2005), pp. 325–338. Collins (“Teleological Argument”) responds by rejecting the principle of countable additivity. For similar responses, see Bradley Monton, “God, Fine-Tuning, and the Problem of Old Evidence,” *British Journal of Philosophy of Science*, vol. 57, no. 2 (2006), pp. 405–424; and Alvin Plantinga, *Where the Conflict Really Lies: Science, Religion, and Naturalism* (Oxford, UK: Oxford University Press, 2011).
6. As Collins writes in defending the fine-tuning argument, “since God is an all good being, and it is good for intelligent, conscious beings to exist, it is not surprising or improbable that God would create a world that could support intelligent life.” Collins, “A Scientific Argument for the Existence of God: The Fine-Tuning Design Argument,” in *Reason for The Hope Within*, ed. Michael Murray (Grand Rapids: Eerdmans 1999), pp. 47–75, quote: 54. Similar arguments appear in Richard Swinburne, “The Argument to God from Fine-Tuning Reassessed,” in *God and Design*, ed. Neil Manson (London: Routledge, 2003), pp. 80–105.
7. Monton considers a superficially similar objection in which colliding hydrogen atoms realize mental phenomena. That objection concerns the “substrate independence” of minds, which seems to be the

same thing as multiple realizability, and doesn't involve different psychophysical laws. Defenders of the fine-tuning argument might respond that actual psychophysical laws never allow hydrogen atoms to realize mental states. But this is no response to objections based on the metaphysical possibility of different psychophysical laws. Bradley Monton, *Seeking God in Science* (Calgary: Broadview, 2009), p. 83.

8. Perceptual capacities of this sort are treated as a valuable part of the kind of intelligent life God would wish to create in Swinburne ("Argument to God"). Swinburne allows that "particle-bodies," which seem to have even less physical structure than protons and electrons, could have such capacities.

9. Some of these laws ground particles' mental states in an asychronic or externalist way. This makes it easy for them to have complex memories and perceptual states despite their simple internal structure. It may even let them achieve the ideal of unmediated perception discussed in David Chalmers, "Perception and the Fall from Eden," in *Perceptual Experience*, ed. Tamar Szabó Gendler and John Hawthorne (Oxford, UK: Oxford University Press, 2006), pp. 49–125.

10. Collins, "Teleological Argument," pp. 255, 203.

11. David Chalmers, *The Conscious Mind: In Search of a Fundamental Theory* (Oxford, UK: Oxford University Press, 1996).

12. For minds to exist, psychophysical laws must mesh with physical laws, conferring mental properties upon the specific structures that the physical laws allow. If the psychophysical laws only confer minds upon charged particles, but the physical laws don't allow charge, the laws won't mesh and minds won't exist. If it's highly improbable that arbitrary pairings of physical laws and psychophysical laws would mesh in this way, God's existence could explain our good fortune in inhabiting a world where they mesh, giving rise to a new version of the fine-tuning argument. One objection to this new argument is that it assumes that psychophysical laws must be narrow, only conferring minds on a small range of possible physical structures. Why couldn't they be broader, perhaps conferring minds on anything that moves, and meshing with any physical laws that allowed motion? This breadth could also be achieved by a disjunction of many narrow psychophysical laws, jointly conferring minds upon a wide range of particles. Nevertheless, this may be the most promising direction for the fine-tuning argument, and I thank an anonymous referee for this journal for suggesting it.

13. For example, see Michael Tye, "The Subjective Qualities of Experience," *Mind*, vol. 95, no. 377 (1986), pp. 1–17; and Brian Loar, "Phenomenal States," *Philosophical Perspectives*, vol. 4 (1990), pp. 81–108.

14. For example, John Bishop's conception of "God as the Active Power of Love within the Universe" is in principle compatible with physicalism. But he sensibly doesn't offer a fine-tuning argument. See John Bishop, "Towards a Religiously Adequate Alternative to OmniGod Theism," *Sophia*, vol. 48, no. 4 (2009), pp. 419–433, esp. 431.

15. William Alston's view that God doesn't have beliefs doesn't help the fine-tuning argument avoid the objection. Alston holds that God has other mental states, including "unlimited intuitive knowledge that . . . serves to ground such behavioural dispositions as He possesses." See William Alston, "Does God Have Beliefs?" *Religious Studies*, vol. 22, no. 3 (1986), pp. 287–306, quote: 299.

16. Maimonides and Aquinas held views along these lines. For a contemporary discussion, see Isaac Franck, "Maimonides and Aquinas on Man's Knowledge of God: A Twentieth Century Perspective," *Review of Metaphysics*, vol. 38, no. 3 (1985), pp. 591–615.

17. John Leslie, *Universes* (London: Routledge, 1989), p. 17. Leslie also considers the possibility that there are many bullets hitting the wall, representing a multiverse in which many universes are realized. For further discussion of fine-tuning arguments for a multiverse, see Rodney Holder, "Fine-Tuning,

Multiple Universes, and Theism," *Noûs*, vol. 36, no. 2 (2002), pp. 295–312; Cory Juhl, "Fine-Tuning, Many Worlds, and the 'Inverse Gambler's Fallacy,'" *Noûs*, vol. 39, no. 2 (2005), pp. 337–347; and Stephen Leeds, "Juhl on Many Worlds," *Noûs*, vol. 41, no. 3 (2007), pp. 536–549. These arguments don't require non-physical minds as theistic arguments do, so they can deny that more mind-friendly laws are possible.