Fine-Tuned for Life: A Teleological Argument for God's Existence – A Short Case

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If you walked into your hotel room and heard your favorite music playing in the background, smelled your favorite scent filling the room, noticed your favorite beverage and snacks on the desk, your own brand of toiletries in the bathroom, and the TV tuned to your favorite channel, what would you conclude? You would conclude that *someone* knew *you* were coming.[1] This is an apt description of our universe. It is tailor-made for the existence of intelligent life. It's as if the universe knew we were coming. Let me explain.

The universe could have been very different from the way it actually is. For example, if the initial conditions of the universe had been different, the universe would have been different. Some universes would only last for a brief time before collapsing in on themselves and ceasing to exist. Others would expand so fast that matter could not coalesce. Either way, there would be no intelligent life. The same is true of the laws of nature. The laws of nature have taken on specific strengths that we call "constants," but the laws of nature could have taken on different strengths. If the strength of the physical constants were slightly different, they would result in different kinds of universes, most of which would prohibit the existence of intelligent life.

The initial conditions and physical constants (ICPC) are said to be "fine-tuned" for life because the life-permitting range of values for the ICPC are extremely small compared to the range of all physically possible values.[2] If the actual values for those physical constants were just slightly different, there would be no intelligent life within the universe, and in some cases, no universe capable of sustaining its own existence over time. The precision required for a life-permitting universe defies imagination. Let me provide just a few examples of fine-tuning.

EXAMPLES OF FINE-TUNING

Initial Entropy

Disorder increases as you move forward in time. That means the universe was in its most ordered state at the Big Bang. This is what scientists call a "low entropy state." In the beginning, mass and energy were finely balanced. The initial distribution of mass-energy is referred to as entropy fine-tuning.

Cosmologist, Roger Penrose, calculated precisely how fine-tuned the initial entropy needed to be by comparing the number of mass-energy configurations that would result in a universe like ours [$10^{10(101)}$] to the number that would result in black hole dominated universes [$10^{10(123)}$]. The latter number is so

[1]Antony Flew and Roy Abraham Varghese, *There is a God: How the World's Most Notorious Atheist Changed His Mind* (New York: Harper One, 2007), 113-4.

[2]There are other layers of fine-tuning as well, including the laws of gravity and our local solar system.

much bigger than the former that when you divide the two numbers, you still end up with $10^{10(123)}$.[3] That means the initial entropy was fine-tuned to $10^{10(123)}$. The staggering size of this number cannot be overstated. It literally defies comprehension. To give you a sense of how large this number is, consider the fact that there are only 10^{80} elementary particles in the universe. If we used each particle to represent a zero in the number, $10^{10(123)}$, it would require 10^{43} more universes the same size as ours just to write the number out! That's 10 billion billion billion billion billion billion billion more universes!

Gravity

Gravity is an attractive force. It attracts objects to one another. It is the weakest of the four fundamental forces. What would happen if gravity had assumed a different value than it has? If gravity were stronger, only elements heavier than carbon and oxygen would form.[4] If gravity were just 1/100,000,000,000,000th (1/100 trillionth) degree stronger, the universe would not have expanded to form the terrestrial bodies. If gravity were 1/100,000,000,000,000th degree weaker, the universe would expand at rate too fast for matter to coalesce into terrestrial bodies. Life would be impossible.[5] Stars wouldn't get hot enough to form carbon, or they wouldn't form enough elements needed for life. Furthermore, when the star died, it wouldn't explode and all those elements would remain in their core instead of being dispersed throughout the universe.

Gravity is fine-tuned to 1 part in 10^{60} (1 trillion trillion trillion trillion trillion). That means you can only adjust the strength of gravity by 1 part in 1,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000 without prohibiting the existence of life. If the strength of gravity was set at 999,999,999,999,999,999,999,999,999,999,999,999,999,999,999,999,999,999,999,99**9** life would still be possible, but if it were set at 999,999,999,999,999,999,999,999,999,999,999,999,999,999,999,999,999,999,999,99**8** life would no longer be possible in the universe.

To get a picture of just how precise the strength of gravity has to be, imagine a ruler stretching 14 billion light years across the observable universe (82 billion trillion miles). Each inch on the ruler represents a possible value for the force of gravity. Now imagine a pointer that could be moved along the ruler to indicate the actual value of gravity. That pointer would have to be set within a 1" space along that ruler for life to exist. If you moved the pointer 1" to the right or 1" to the left of its actual value, life would be impossible.

Cosmological Constant

The cosmological constant measures the density of energy in space (repulsive force against gravity) that governs the expansion speed of space. Scientists estimate that it is fine-tuned to at least 1:10^{53}, but is typically thought to be as high as 1:10^{120}. To illustrate just how precise this number is, your chances of finding a specific subatomic particle in our universe is 1:10^{80}. Those chances are 10 billion times more likely than 1:10^{90} and 10,000 trillion trillion trillion times more likely than 1:10^{120}.[6]

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[3]Stephen C. Meyer, *The Return of the God Hypothesis: Three Scientific Discoveries that Reveal the Mind Behind the Universe* (New York: HarperOne, 2021), 148.

[4]Meyer, 138.

[5]Logan Paul Gage, "Review: The Language of God: A Scientist Presents Evidence for Belief." Originally appearing in the American Spectator, it is available online from http://www.discovery.org/scripts/viewDB/index.php?command=view&id=3749&program=DI%20Main%20Page%20-%20Article&callingPage=discoMainPage; Internet; accessed 03 October 2006.

[6]Meyer, 152.

The amazing precision of the cosmological constant led Leonard Susskind (the Stanford physicist who invented string theory) to write, "[T]he discovery that the value of the cosmological constant – the energy of empty space which contributes to the expansion rate of the universe – seems absurdly improbable, and nothing in fundamental physics is able to explain why."[7] University of Texas physicist and Nobel laureate, Steven Weinberg, agrees: "This is the one fine-tuning that seems to be extreme, far beyond what you could imagine just having to accept as a mere accident."[8]

EXPLAINING THE FINE-TUNING

The vast majority of all physicists and cosmologists agree that the ICPC are fine-tuned. Here are just a couple of quotes from prominent scientists affirming the reality of fine-tuning. Stephen Hawking wrote:

> The laws of science, as we know them at present, contain many fundamental numbers, like the size of the electric charge of the electron and the ratio of the masses of the proton and electron. … The remarkable fact is that the values of these numbers seem to have been very finely adjusted to make possible the development of life. For example, if the electric charge of the electron had been only slightly different, stars either would have been unable to burn hydrogen and helium, or else they would not have exploded [which allows elements necessary for life to be scattered]. … It seems clear that there are relatively few ranges of values for the numbers that would allow the development of any form of intelligent life.[9]

British cosmologist, Martin Rees, writes: "If we modify the value of one of the fundamental constants, something invariably goes wrong, leading to a universe that is inhospitable to life as we know it. … The conditions in our universe really do seem to be uniquely suitable for life forms like ourselves, and perhaps even for any form of organic complexity."[10]

Fine-tuning is an accepted scientific fact. The big question is what can explain the fine-tuning. Of all the ways our universe could have been, why is it that the basic features of the universe – both individually and collectively – fall within an excessively improbable range that makes intelligent life possible? There are only three broad types of possible explanations: (1) physical necessity; (2) chance; (3) intelligence. The teleological argument holds that the fine-tuning is best explained by a designing intelligence, and the identify of this designer is none other than the God of theism.[11]

Physical Necessity?

Could it be that the ICPC must have the values they do? Could it be that no other values are physically possible? No, this does not seem right. The laws of nature themselves cannot determine the values of their constants, so how could it be due to physical necessity?

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[7]Leonard Susskind, in an interview with Amanda Gefter of *New Scientist*, "Is String Theory in Trouble?", December 17 2005 edition, p. 48; available from http://www.newscientist.com/channel/fundamentals/mg18825305.800.html; Internet; accessed 5 January 2006.

[8]Tim Folger, "Science's Alternative to an Intelligent Creator: the Multiverse Theory" in Discover magazine; available from https://www.discovermagazine.com/the-sciences/sciences-alternative-to-an-intelligent-creator-the-multiverse-theory; Internet; accessed 03 March 2022.

[9]Stephen Hawking, *A Brief History of Time* (New York: Bantam Books, 1998), 129-30.

[10]Martin Rees and John Gribbin, *Cosmic Coincidences: Dark Matter, Mankind, and Anthropic Cosmology* (New York: Bantam Books, 1989), 269.

[11]"Teleology" comes from the Greek word *telos*, referring to the goal, aim, or purpose of something. Teleological arguments argue for the existence of God based on various evidences of design in the natural world.

Our modal intuitions also count against this theory. If the fine-tuning is due to physical necessity, that would mean the universe had to be exactly the way it is. No other kind of universe was possible. It would mean there is only one possible world: the actual world. But this seems absurd. We can imagine all sorts of different kinds of universes existing with different physical laws, different values for the physical constants, or even constituted by different particles. In fact, that is how scientists are able to determine what the universe would be like if the values of the constants were different, or if the initial conditions of the universe were different.

If fine-tuning is explained by physical necessity, it would also mean that the fundamental particles of our universe (quarks, neutrons, protons, etc.) are also necessary – not just in kind, but in number and arrangement as well. Why are there *x* number of particles in the universe rather than *x* + 1 or *x* – 1? The answer is that has to be precisely *x*. It is physically necessary that it be *x.* But this seems preposterous. Surely the number or kind of fundamental particles could have been different, or arranged differently, or operated according to different physical laws. There is no basis for thinking that the physical constants of our universe may be necessary.

Chance?

Could the values of the physical constants be explained by chance? No. Some of these physical constants were initial conditions present at the origin of the universe, so they cannot be explained on the basis of some random, chance, evolutionary process. They were baked in from the get-go. Besides, it seems preposterous to think that the constants could assume their values by sheer chance given the incomprehensible precision involved. As Max Tegmark writes:

> Our universe appears surprisingly fine-tuned for life in the sense that if you tweaked many of our constants of nature by just a tiny amount, life as we know it would be impossible. … Some of the fine-tuning appears extreme enough to be quite embarrassing – for example, we need to tune the dark energy to about 123 decimal places to make habitable galaxies. To me, an unexplained coincidence can be a tell-tale sign of a gap in our scientific understanding. Dismissing it by saying "We just got lucky—now stop looking for an explanation!" is not only unsatisfactory, but is also tantamount to ignoring a potentially crucial clue.[12]

It is beyond the productive capacity of chance to produce such precision. If our alphabet cereal spelled “eat this and you will die,” we would assume that a family member must have arranged the letters because we know this is beyond the productive capacity of chance. How much more, then, should we conclude that chance is incapable of accounting for the fine-tuning which is orders upon orders of magnitude more specified than the message in our cereal?

Design?

Our uniform experience tells us that only intelligent agents are capable of setting multiple parameters at extremely precise measurements to fulfill a particular purpose. We recognize the presence of design when some *x* (1) has a low probability of occurring by chance and (2) it matches an independent pattern. For example, imagine you observed someone handing a phone to a random stranger and asking them to

[12]Max Tegmark, “The Multiverse Strikes Back,” *Scientific American*, posted 19 July 2011; available from http://www.scientificamerican.com/article.cfm?id=multiverse-the-case-for-parallel-universe; Internet; accessed 08 November 2011.

randomly dial any 10-digit phone number. The person does so, and immediately your phone rings. They called you! Would you conclude that this happened by chance? After all, one string of 10-digits is just as improbable as the next. Of course you wouldn't conclude that it was chance! You would immediately conclude that the "stranger" was not randomly chosen, but was selectively chosen by the man with the phone and that the "stranger" was given your phone number in advance (an independent pattern). In other words, you would recognize that this event was designed.

The ICPC are fine-tuned orders of magnitude beyond the fine-tuning of your phone number. If you would recognize that chance could not, but design could, account for the fine-tuning of your phone number being dialed, you should also recognize that the fine-tuning of the ICPC is due to design rather than chance.

A good number of notable scientists who are keenly aware of the fine-tuning problem have noted their openness to the design hypothesis as the best explanation:

- Massimo Pigliucci: "[F]alsification of the materialist paradigm is indeed possible. The recent controversy over the so-called anthropic principle is a case in point. Should we conclusively determine that the probability of existence of our universe is infinitesimally small, and should we fail to explain why physical constants have assumed the quantities that we observe, the possibility of a designed universe would have to be considered seriously."[13]
- Paul Davies: "There is for me powerful evidence that there is something going on behind it all....It seems as though somebody has fine-tuned nature's numbers to make the Universe....The impression of design is overwhelming."[14]
- Arno Penzias: "Astronomy leads us to a unique event, a universe which was created out of nothing and delicately balanced to provide exactly the conditions required to support life. In the absence of an absurdly-improbable accident, the observations of modern science seem to suggest an underlying, one might say, supernatural plan."[15]
- Fred Hoyle said "a commonsense interpretation of the facts suggests that a super intellect has monkeyed with the physics, as well as chemistry and biology, and that there are no blind forces worth speaking about in nature. The numbers one calculates from the facts seem to me so overwhelming as to put this conclusion almost beyond question."[16]

IDENTIFYING THE DESIGNER

The conclusion that the fine-tuning is best explained by a designing intelligence is extremely informative, but it still leaves one wondering regarding the identity of the designer. Who, or what, designed the universe? Through a logical analysis, I think we can make great advancements toward answering this question.

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[13]Massimo Pigliucci, "The Provine-Scott Discussion at the RET: Methodological vs. Philosophical Naturalism," available from www.rationalists.org/rc/1998_spring/provine-scott.htm; Internet; accessed 26 February 2008.

[14]Paul Davies, *The Cosmic Blueprint: New Discoveries in Nature's Creative Ability To Order the Universe* (New York: Simon and Schuster, 1988), 203.

[15]Quoted in Walter Bradley, "The 'Just-so' Universe: The Fine-tuning of Constants and Conditions in the Cosmos," in William Dembski and James Kushiner, eds., *Sings of Intelligence* (Grand Rapids, MI: Baker, 2001), 168, quoted in Norman Geisler and Frank Turek, *I Don't Have Enough Faith to Be an Atheist* (Wheaton, IL: Crossway Books, 2004), 106.

[16]Fred Hoyle, "The Universe: Past and Present Reflections," *Engineering and Science* (November 1981): 12, quoted in Norman Geisler and Frank Turek, *I Don't Have Enough Faith to Be an Atheist* (Wheaton, IL: Crossway Books, 2004), 106-7.

The Designer Must be a Personal Agent

We can safely rule out the idea that the designer is some sort of mathematical law, force, or abstract object. Design requires purpose, forethought, and intelligence. These features belong uniquely to minds, and minds belong uniquely to personal agents. The designer is a *who*, not a *what*.

What kind of personal agent could design the universe? I can only think of three possibilities: (1) an alien or alien race of some sort; (2) a finite god or group of finite gods; (3) a theistic being such as the one represented in Judaism, Christianity, and Islam.

Aliens Don't Make the Cut

Could the designer be an alien or group of aliens? No. As physical beings, aliens would have originated within the physical universe at some point in the finite past. They could only come into being within a universe that was already finely-tuned for intelligent life. If the fine-tuning of the universe had to be in place prior to the origin of aliens, then aliens cannot be the cause of the fine-tuning.

This is particularly evident for the fine-tuning of the initial conditions of the universe. Since the fine-tuning was in place from the moment physical reality began to exist, the designer existed before the universe. As such, he/they is both transcendent and immaterial. Aliens are neither, and thus aliens could not be responsible for the fine-tuning.

Finite gods or Infinite God?

If the designer must be immaterial and transcend the universe, that leaves us with some sort of divine or spiritual being. But is that being finite or infinite? Is he/they akin to the polytheistic gods of Hinduism and Greece, or the perfect being of theism?

Not a Finite god

If the designer were a finite divine being without the perfections of the theistic God, then he/they would be a contingent being.[17] Contingent beings require external causes, so there would have to be a second god who explains the existence of the creator god. This would invite an infinite regress because the second finite god would need an explanation in a third finite god, and the third finite god would require an explanation in a fourth finite god, *ad infinitum*. An infinite regress is impossible, therefore, the

[17]"Being" often connotes consciousness in modern parlance. That's not what philosophers have in mind when they speak of contingent beings. The term could just as easily be expressed as "contingent thing."

designer cannot be finite.[18] He must be a metaphysically necessary being who requires no causal explanation.[19] This is the kind of divine being exemplified in Judaism, Christianity, and Islam.

And Then There Was One

Could we narrow down the identity of the designer even more? Is it possible to determine whether the theistic being who designed our universe is the God of Judaism, Christianity, or Islam? A full case for one religion over the others would require a separate research paper. For our purposes here, let me offer just one piece of evidence that I think forecloses on Christianity as being the religion that best represents the character and nature of the theistic God: the resurrection of Jesus.

Jesus taught many things concerning God's identity and will. Some considered His teachings to be blasphemous, and executed Jesus on that basis. If Jesus were teaching false things about God, then He deserved his fate. However, God raised Jesus from the dead. In doing so, God vindicated Jesus' teachings and claims. That means we can trust that Jesus' religious perspective was correct. Since Jesus' teachings differed from both Judaism and Islam, those religions do not represent the most accurate view of God. Christianity alone tells us what the designer God is like.

The million dollar question, of course, is why we should believe Jesus rose from the dead. Answering that question is beyond the scope of this paper, but I have detailed the evidence elsewhere and refer you to those resources for more information.[20]

CONCLUSION

The universe is finely-tuned for the existence of intelligent life. We observe hundreds of examples of fine-tuning at multiple levels. Many of these finely-tuned parameters have to be so precise that it defies human comprehension. The fine-tuning cannot be explained by chance or physical necessity, but only by design. Only intelligent agents are capable of setting multiple parameters at extremely precise measurements to accomplish a purpose. The reason it feels like the universe knew we were coming is because it did. God designed the universe in such a way that it could host intelligent life. The fine-tuning of the universe, then, provides a powerful argument for the existence of God.

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[18]It is logically and metaphysically possible that our universe was designed by a finite divine/spiritual being who was himself created by the metaphysically necessary God of theism. It's also possible that our universe was created by a finite divine/spiritual being who was himself created by another finite divine/spiritual being, who was himself created by the metaphysically necessary God of theism, and so on. So in saying that the designer of our universe cannot be finite, I don't mean to imply that it is metaphysically or logically impossible that our universe was created by a finite god. It is possible, but given the principle of parsimony (Occam's Razor), there is no need to multiply causal entities beyond necessity. There is no reason to invoke a finite god to explain the design of our universe when the metaphysically necessary being is adequate to the task. Whether the metaphysically necessary God of theism created our universe immediately or mediately through finite intermediaries, the fact remains that the God of theism is ultimately responsible for the design of our universe. Since we have reason to believe a metaphysically necessary God exists and no independent reason to believe a finite god exists, there is no reason to believe the designer of our universe was a finite god.

[19]This trades on the contingency argument for God's existence. See https://thinkingtobelieve.com/2023/11/17/theistic-arguments-4-the-contingency-argument-for-gods-existence for more information regarding this argument. I've also written briefly on this argument at https://thinkingtobelieve.com/2012/06/21/even-if-the-universe-is-eternal-it-still-needs-a-cause/ and https://thinkingtobelieve.com/2013/04/23/contingency-argument-for-gods-existence/.

[20]For a short case, see https://thinkingtobelieve.com/2019/04/21/the-historical-evidence-for-the-resurrection-of-jesus-a-short-case-2/. For a fuller treatment, see http://onenesspentecostal.com/resurrection.htm.