

# GOD'S CRIME SCENE

J. WARNER WALLACE

## Fine-tuning Argument

**Premise 1: The universe appears to be fine-tuned for life.**

**Premise 2: This fine-tuning is due to either necessity, chance, or design.**

**Premise 3: It is not due to necessity or chance.**

**Conclusion: Therefore, the universe is designed for life.**

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## Fine-tuning examples

### Foundational level:

Universe would not be capable of supporting life if:

- force of gravity varied by more than 1 part in  $10^{40}$
- expansion rate of the universe varied by more than 1 part in  $10^{37}$
- weak force varied by more than 1 part in  $10^{100}$
- ratio between the electromagnetic force and gravity varied by more than 1 part in  $10^{40}$
- ratio of electrons to protons (both in their numbers and mass) varied by more than 1 part in  $10^{37}$
- mass density of the universe varied by more than 1 part in  $10^{59}$

Combining some of these probabilities, theoretical physicist Lee Smolin calculated the probability of getting a universe in which stars exist as one chance in  $10^{229}$ .

For perspective, there are about  $10^{80}$  elementary particles in the universe (protons, electrons, neutrons, etc).

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## Fine-tuning examples

### Analogies for perspective:

"Imagine covering the entire North American continent in dimes and stacking them until they reached the moon. Now imagine stacking just as many dimes again on another billion continents the same size as North America. If you marked one of those dimes and hid it in the billions of piles you'd assembled, the odds of a blindfolded friend picking out the correct dime is approximately 1 in  $10^{37}$  – the same level of precision required in the strong nuclear force and the expansion rate of the universe."

"Imagine stretching a measuring tape across the entire known universe. Now imagine one particular mark on the tape represents the correct degree of gravitational force required to create the universe we have. If this mark were moved more than an inch from its location (on a measuring tape spanning the entire universe), the altered gravitational force would prevent our universe from coming into existence."

"Imagine trying to fire a bullet at a one-inch target on the other side of the observable universe. The accuracy required to accomplish such a feat has been calculated at 1 in  $10^{60}$ . Compare this to the precision required in calibrating the mass density of the universe (fine-tuned to within 1 unit in  $10^{59}$ )."

"Imagine comparing the universe to an aircraft carrier like the USS *John C. Stennis* (measuring 332 metres long with a displacement of 90,700 tonnes). If this carrier were as fine-tuned as the mass density of our universe, subtracting a billionth of a trillionth of the mass of an electron from the total mass of the aircraft carrier would sink the ship."

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## Fine-tuning examples

### Regional level:

#### Our galaxy:

- Spiral shaped, unlike 95% of other galaxies. Spiral galaxies have less harmful radiation and allow for stars to form before heavy elements are made.
- Small and dense enough to allow for star formation, and large and sparse enough to avoid star systems colliding within it.
- Positioned just far enough from other galaxies to avoid collisions.

#### Our solar system:

- Located along a spiral arm of the Milky Way - far enough from our galaxy's centre and the harmful radiation it emits, and close enough to get heavy elements to form planets.
- Gravity from Jupiter and Saturn help to redirect asteroids and debris away from Earth.
- Only has one star, unlike most other star systems. Helps to avoid overheating and gravitation problems.

#### Our sun:

- Stably burns without fluctuations.
- The perfect size to hold Earth in orbit and avoid burning too fast and hot.
- Perfect colour to allow for photosynthesis on Earth.

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## Fine-tuning examples

### Local level:

- Earth is just the right distance from the Sun. Even a very slight change in that distance would cause an unstable water cycle.
- Minor changes in Earth's tilt would cause climate problems.
- If Earth rotated slower our days would be too hot and nights too cold to support life. Any faster and wind speeds would be too extreme.
- If Earth's gravity were stronger the atmosphere would have too much methane and ammonia. Any weaker and Earth would not retain enough water.
- Atmosphere is just the right mix of oxygen and nitrogen, and just enough CO2 and water vapour to allow for advanced life, photosynthesis, and sufficient rainfall.
- A thicker crust would affect the amount of oxygen in the air. A thinner crust would cause unstable tectonic and volcanic activity.
- The crust's nutrient and mineral levels are just right.
- The moon is just the right size to stabilize Earth's orbit and rotation.
- Without the moon, Earth's tilt could have wobbled drastically, perhaps up to 90 degrees.

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## Fine-tuning examples

### Another thought:

- Our position allows for science and discovery.
- We could have ended up in another part of the galaxy with too much light, preventing us from seeing into deep space.
- Our atmosphere could have been opaque rather than transparent.
- The moon is at the perfect distance from Earth to tightly blot out the sun in a solar eclipse, allowing us to study the sun's chromosphere and also confirm predictions that light bends with gravity.



- "As we stand gazing at the heavens... we gaze not into a meaningless abyss but into a wondrous arena commensurate with our capacity for discovery... [A] universe so skilfully crafted for life and discovery that it seems to whisper of an extra-terrestrial intelligence immeasurably more vast, more ancient, and more magnificent than anything we've been willing to expect or imagine." – Guillermo Gonzalez and Jay W Richards.

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## Majority agreement

"When you look from the perspective of a scientist at the universe, it looks as if it knew we were coming. There are 15 constants -- the gravitational constant, various constants about the strong and weak nuclear force, etc. -- that have precise values. If any one of those constants was off by even one part in a million, or in some cases, by one part in a million million, the universe could not have actually come to the point where we see it. Matter would not have been able to coalesce, there would have been no galaxy, stars, planets or people." – Francis Collins

"A common sense interpretation of the facts suggests that a superintellect has monkeyed with the physics... 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." – Sir Fred Hoyle (astrophysicist and cosmologist)

"My argument has been that the fine tuning is evidence, genuine evidence, of the following fact: that God is real, and/or there are many and varied universes" – John Leslie (philosopher, pantheist)

"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." – Paul Davies (physicist, agnostic)

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## Possible explanations

### - Physical necessity

- Chance
- Design

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## Possible explanations

### Physical necessity:

- Is it possible that the universe's physical construction could not have been different? Perhaps the laws of physics literally could not be any different from what they are?
- This would mean that a non-life-permitting universe is physically impossible. There is no reason to think this.
- Also, the physical constants are not determined by the laws of nature.
- Even if the universe's physical laws and constants were set by necessity, that does not explain the regional and local fine-tuning.

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## Possible explanations

### Chance:

- Perhaps we got very, very, very lucky?
- The probabilities involved are so remote that the fine-tuning is well beyond the reach of chance.
- "You might be tempted to suppose that any old rag-bag of laws would produce a complex universe of some sort, with attendant inhabitants convinced of their own specialness. Not so. It turns out that randomly selected laws lead almost inevitably either to unrelieved chaos or boring and uneventful simplicity. Our own universe is poised exquisitely between these unpalatable alternatives, offering a mix of freedom and discipline, a sort of restrained creativity." – Paul Davies, physicist.
- What if there is a multiverse - a "universe generator" that churns out so many universes that we will eventually get a life-permitting universe?
- However, there is no evidence that the multiverse exists. And the universe generator itself would require an enormous amount of fine-tuning.

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## Possible explanations

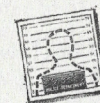
### Design:

- Perhaps this universe looks designed for life because it was? The universe's fine-tuning demands a purposeful Fine-Tuner.
- This is a common-sense way to understand the obvious design of the universe.
- "This seems even more reasonable when we remember what the universe appears to be fine-tuned for: life, carbon-based life, capable of observing and interacting with the universe around us. The inference toward purpose is palpable. Could any impersonal set of physical laws be said to operate with such a goal? Or is the more likely alternative of a intentional, creative Designer the better inference?" – J. Warner Wallace

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## Suspect Profile



Our Emerging "Suspect"  
Profile:

**WHAT IS THE  
NATURE OF OUR  
"SUSPECT"?**

Given what we know so far, the cause of the universe is:

1. external to the universe
2. nonspatial, atemporal, and nonmaterial
3. uncaused
4. powerful enough to create everything we see in the universe
5. specifically purposeful enough to produce a universe fine-tuned for life

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## Objections



A Tool for the Call-Out Bag:

### HOW CAN WE SPOT BAD EXPLANATIONS?

Alternative explanations are offered in every criminal trial, but we can identify three characteristics of bad explanations to disqualify them quickly:

1. The explanation is not supported by the evidence.
2. The explanation attempts to errantly redefine the facts of the case.
3. The explanation is logically contradictory.

When one of these three liabilities is identified in an argument, the explanation offered is either inferior or fallacious.

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## Objections

**This is a "God of the gaps" argument. We look at a complex universe and say, "God did it."**

- A "God of the gaps" argument is when someone finds a gap in our knowledge and plugs God into it to explain it. They say, "I can't explain it, therefore God did it." (E.g. Attributing thunder to a god)
- A "God of the gaps" argument is based on ignorance (lack of knowledge). We need to be careful to base our arguments on positive knowledge and evidence.
- In the case of the fine-tuning argument, we are looking at evidence that scientists are informing us about, and we are trying to decide on the most reasonable inference.
- We are all familiar with the airmarks of design. The honest truth is that the universe shows very strong evidence that it has been purposefully designed to allow for life.
- Also, we did consider other alternatives to design, such as physical necessity and chance. They failed to explain the evidence in the exhaustive way as the design inference.

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## Objections

**We are alive, so we shouldn't be surprised that the universe is capable of supporting life.**

- That is not the point of the argument. The point is not that the universe is just capable of supporting life. That much is obvious. The point is how unlikely it is that the universe can support life.
- Let's say I'm telling you a story that happened to me. I fell from a plane, hurtled toward earth, and then landed in a net that was suspended in the exact location and just the right size to catch me, that slows down my fall until it gently places me onto solid ground.
- You would not say, "But you're here to tell the story. You clearly survived, so I'm not surprised to hear about the net in your story." Rather, you would marvel that I survived even though the odds of my survival are so minute.
- Survival does not cancel the need for an explanation. The fact that the universe is so incredibly fine-tuned to allow for life still needs an explanation. We mustn't confuse observation with explanation.

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## Objections

**In a multiverse, universes could have different physical laws with constants that do not need such fine-tuning.**

- Even if a multiverse exists, it really doesn't matter what the physical laws of other universes are. What matters is that a life-supporting universe with *our* physical laws is so very unlikely.
- William Lane Craig uses the example of shooting a fly on a vast blank area of a wall while blindfolded. Even if the rest of the wall outside of the blank area is absolutely covered with flies, we're concerned with the likely hood of blindly shooting the single fly in the blank area.
- In the same way, even if other universes had physical laws and constants that allow much greater chances of supporting life, the fact is that our universe with its current laws and constants has been so finely tuned to such incredibly narrow, life-permitting values.
- This really just adds to the probability problem of getting a universe like ours. The skeptic is now proposing that not only are the physical constants randomly selected for each universe in the multiverse, but so are the physical laws themselves.

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## Objections

**Life has evolved to fit the physical conditions on Earth. The physical conditions were not tuned to suit us.**

- This is called the “puddle analogy”. Let’s say a puddle becomes sentient and realises that the hole in the sidewalk fits it perfectly. So the puddle thinks that the hole has been designed to suit the puddle. But in reality, the puddle has simply formed to suit the constraints of the hole.
- This could possibly be used to explain the way life is on Earth, but it does not explain how Earth is so perfect to allow for life in the first place.
- If life can so easily evolve to suit other conditions, then surely there would be life on Venus and Mars?
- Also, this does not explain the foundational level fine-tuning, without which there would not be a universe at all.

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## Objections

**If the universe is fine-tuned for life, why is the vast majority of the universe hostile to life?**

- On an “old universe” view, stars go through generations, with each generation of stars creating new elements. We need 3 generations of stars before we end up with the right elements that are needed to make planets like Earth. The universe keeps on expanding throughout this process. So the universe is actually as small as it can be in order to get a planet like Earth.
- The argument is not that *all* of the universe is suitable for life. Rather, the argument points out the astonishment of how delicately balanced the universe is to allow for *any* life to exist.
- We’re arguing towards an All-Powerful God. Is there any reason to think He would create a tight little universe for us to fit snugly inside? The vastness of the universe not only feeds our drive to discover and learn, it also (primarily) declares the glory of God.

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## Objections

**The fine-tuned “life band” is not actually that narrow. Life could still have existed with different physical constants.**

- People who propose this idea normally redefine what we usually mean by “life”.
- When we talk about “life”, we normally mean organisms that can ingest food, metabolize energy, adapt to their environment, and reproduce.
- Particle physicist Victor Stenger (who took this view) said, “In my view, life is a property that any sufficiently complex non-linear, interacting, dissipative system will develop in a sufficiently long time. So I will ignore those parameters that constrain life to our biology and our biology alone.”
- When talking about how the universe supports life, we should not be considering some imaginary form of life. We should be appropriately focused on the fine-tuned parameters that allow for the existence of intelligent, sentient beings capable of pondering the evidence in the first place. (paraphrased from J. Warner Wallace)