

# The Argument from Fine-Tuning

# Overview

- Fine-tuning
  - The argument from fine-tuning
  - Objections
  - Final evaluation
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- Core Assumption: we have excellent reason to accept the Big Bang Theory.
    - Confused because since when does the bible go with the big bang theory and what was Collins saying in that case

# Structure of Arguments to the Best Explanation

1. There is some set of data D.
  2. Explanation/Theory E better explains D than any rival explanations/theories  $E_1$ - $E_n$ .
  3. Therefore, E.
- What determines the quality of an explanation?
    1. Scope: how much the explanation/theory explains.
    2. Simplicity: the number of assumptions made.
    3. Conservatism: how well the theory fits with existing knowledge.
    4. \*note: Christianity is way less simple than naturalism.

# The Fine-Tuning of the Universe

- **Fine-tuning of the universe:** there exists an extraordinary balance of the parameters of physics and the initial conditions of the universe (Collins, 48).
  1. If the initial explosion of the big bang had differed in strength by as little as one part in  $10^{60}$ , the universe would have either quickly collapsed back on itself, or expanded too rapidly for stars to form. In either case, life would be impossible.
  2. Calculations indicate that if the strong nuclear force, the force that binds protons and neutrons together in the atom, had been stronger or weaker by as little as 5%, life would be impossible.
  3. Calculations show that if gravity had been stronger or weaker by one part in  $10^{40}$ , then life-sustaining stars like our sun could not exist. This would most likely make life impossible.
  4. If the neutron were not about 1.001 times the mass of the proton, all protons would have decayed into neutrons or all neutrons would have decayed into protons, and thus life would not be possible.
  5. If the electromagnetic force were slightly stronger or weaker, life would be impossible.
    1. All of these factors are independent of each other, so each one had to be set perfectly on its own, like each individual knob on the tuning board

# Fine-Tuning



# Fine-Tuning (cont.)

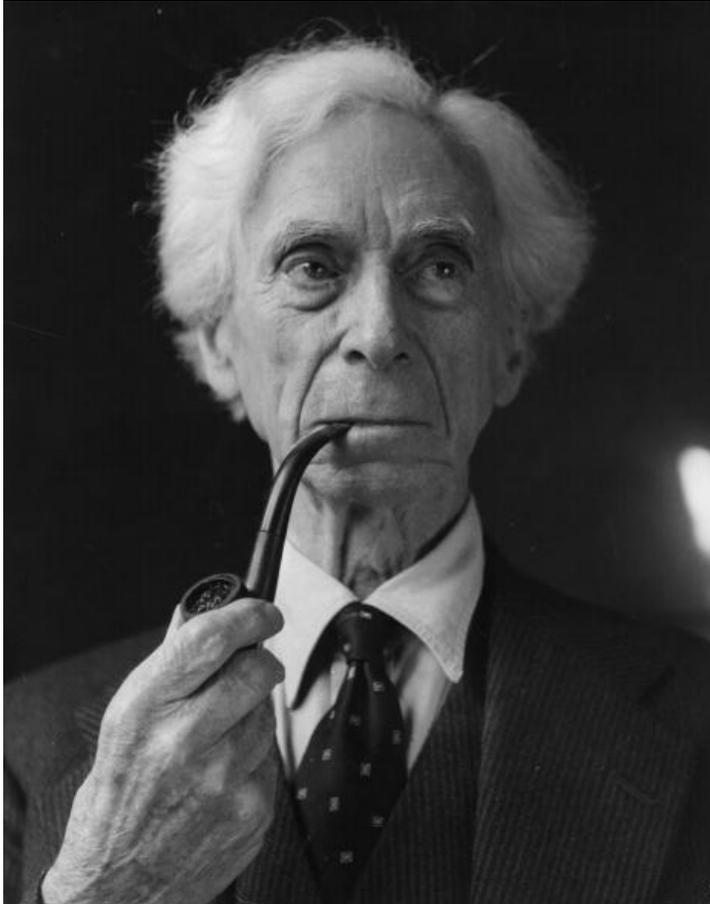
- Almost no one, theist or nontheistic, disputes that the universe *appears* to be fine-tuned
- “The remarkable fact is that the values of these numbers [i.e. the constants of physics] seem to have been very finely adjusted to make possible the development of life.” (Stephen Hawking, 1988, “A Brief History of Time,” p. 125.)
- “The impression of design is overwhelming” (Paul Davies, *The Cosmic Code*, 1988, p. 203).
  - These two men are atheists
  - Everybody says that stuff like biological entities look/seem designed but some people say that although things seem designed, they are not.
- So far this is all fact. What is disputed is what best explains this appearance.

# The Argument from Fine-Tuning

1. There exists an extraordinary balance of the parameters of physics and the initial conditions of the universe.
  2. The best explanation of the existence of fine-tuning is that the universe was finely tuned by God.
  3. Therefore, God exists.
- Why did he say it must be God?
  - Given that God is good, and it is good for conscious, intelligent, rational beings to exist, it is not surprising that God would have fine-tuned the universe to evolve in such a way that humans, or something very much like humans, came to exist.

# Objections

# Who Designed God? Objection



- “If everything must have a cause, then God must have a cause. If there can be anything without a cause, it may just as well be the world as God, so that there cannot be any validity in that argument. It is exactly of the same nature as the Hindu’s view, that the world rested upon an elephant and the elephant rested upon a tortoise; and when they said, ‘How about the tortoise?’ the Indian said, ‘Suppose we change the subject.’ The argument is really no better than that.” (Bertrand Russell *Why I Am not a Christian*)
- Christian rationale: **God doesn’t have to make sense, because he is a magic fairy with magic powers**
  - We need an explanation of why the universe exists, but not an explanation of why God exists
  - **Christians say well they are both infinite so sure I don’t know everything about God but you don’t know everything about the universe**
  - This is a last-resort argument only for if you think that you need to know everything about in order to understand it
  - The universe came into being and didn’t have to exist, so we need to explain it. God always existed and is infinite and necessary.

Collins doesn’t argue against this

# Two Rival Explanations

- **Atheistic single-universe hypothesis:** “there is only one universe, and it is ultimately an inexplicable, ‘brute’ fact that the universe exists and is fine-tuned” (Collins, 50).
  - Brute fact: it is inexplicable. So this isn’t much of an explanation. But Christians say that God is a brute fact and doesn’t have much of an explanation. They also say that this explanation (where they call it a brute, inexplicable fact) is the stupidest. Coincidence that is similar to the Christians’ explanation of God? I think not.
- Response: Consider an analogy: “think of the initial conditions of the universe and the fundamental parameters of physics as a dart board that fills the whole galaxy, and the conditions necessary for life to exist as a small one-foot wide target: unless the dart hits the target, life would be impossible” (Collins 49).
  - The Milky Way is about 100,000 light years across (A light year is  $9.4605284 \times 10^{15}$  meters).
- The probability of the dart hitting the target is analogous to the probability of the existence of fine-tuning under the atheistic single-universe hypothesis.

# A Second Rival Explanation

- **Atheistic many-worlds hypothesis:** there exists a universe generator that produces a very large (perhaps infinite) number of universes, with each having a randomly selected set of initial conditions and values for the parameters of physics (Collins, 50-1).
  - Anything that you can imagine happening or existing is indeed existing in another universe
    - This is ridiculous
  - Vacuum fluctuation
    - Every universe is like a bubble in a bubble bath and some are there for a long time and some just for seconds
  - Oscillating big bang
    - Oscillating big bang apparently comes from a universe generator, either that or it always has been just forever

Most physicists accept the big bang theory, but not these. I still don't know if collins was accepting the big bang theory or not. The atheistic many-worlds hypothesis says that there is a 100% chance that our universe is the way that it is



# Two Possible Theist Responses

- Takes more faith to believe in many-universes generator than God.
  - Atheists could say that the universe-generator always existed and is infinite and necessary and the vacuum fluctuation has always been going on but the universes have not been going on I think as long as the generator has existed. This does not sound atheistic to me. It sounds the same as God. You might as well just say that the universe-generator made just ours like the bible does. Anyways, from whatever explanation of how many universes there are or whether or not they are fluctuating, why can't we just say that they always just existed?
- Where did universe generator come from?
  - Universe generator itself would need to be “well designed” to produce a single life-sustaining universe.
  - God probably could have created the universes described in any of these three theories.
  - Christians don't see a reason why this universe generator is any better or worse than the God explanation (probably because it's pretty much the same)
    - Vacuum fluctuation exists in hyperphysics which is outside of our own physical realm

I'm confused about why there has to be some kind of magic special kind of physics to make a bunch of crazy universes that do all sorts of weird things in different dimensions. What's so wrong with the big bang and the big crunch? This could have been going on on its own for as long as it wanted to.

# Limits of the Argument from Fine-Tuning

- First limit: it does not, as formulated, provide support for Christianity over Judaism or Islam.
  - We might also consider deism as a serious rival hypothesis to theism.
- Second limit: it does not show that theism is, all things considered, more probable than atheism.
  - The evidence from fine-tuning might, for example, be defeated by evil or some other form of evidence.
  - Theism and atheism can be one better than the other in different categories, so theism can better explain fine tuning (barely) (although I'm not sure that I think that) but atheism better explains evil.