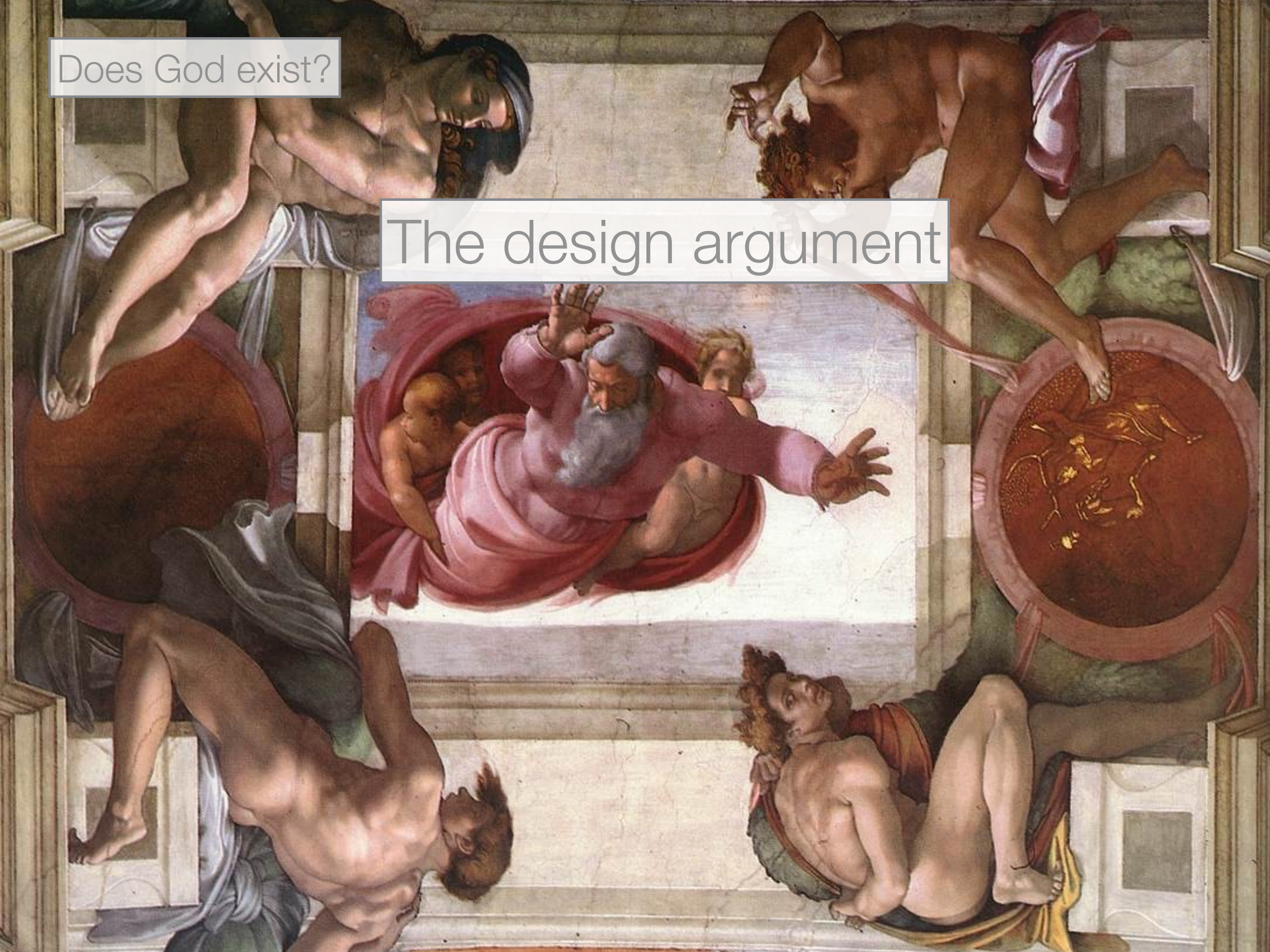Does God exist?

The design argument

The different versions of the cosmological argument we discussed over the last few weeks were arguments for the existence of God based on extremely abstract and general features of the universe, such as the fact that some things come into existence, and that there are some contingent things.

The argument we'll be discussing today is not like this. The basic idea of the argument is that if we pay close attention to the details of the universe in which we live, we'll be able to see that that universe must have been created by an intelligent designer.

This **design argument**, or, as its sometimes called, the **teleological argument**, has probably been the most influential argument for the existence of God throughout most of history.

A version of the teleological argument can be found in the writings of Thomas Aquinas.

The fifth way is taken from the governance of the world. We see that things which lack knowledge, such as natural bodies, act for an end, and this is evident from their acting always, or nearly always, in the same way, so as to obtain the best result. Hence it is plain that they achieve their end, not fortuitously, but designedly. Now whatever lacks knowledge cannot move towards an end, unless it be directed by some being endowed with knowledge and intelligence; as the arrow is directed by the archer. Therefore some intelligent being exists by whom all natural things are directed to their end; and this being we call God.

Aquinas is noting that things we observe in nature, like plants and animals, typically act in ways which are advantageous to themselves. Think, for example, of the way that many plants grow in the direction of light.

...nts don't do this because they **know** where the ...knowledge." But then how do they manage this? ...that plants grow in the direction of light, if not knowledge?

...estion is that they must be "directed to their ...be such as to grow toward the light - by something which does have knowledge of their ends. And if the only alternative is that they behave randomly, this seems reasonable.
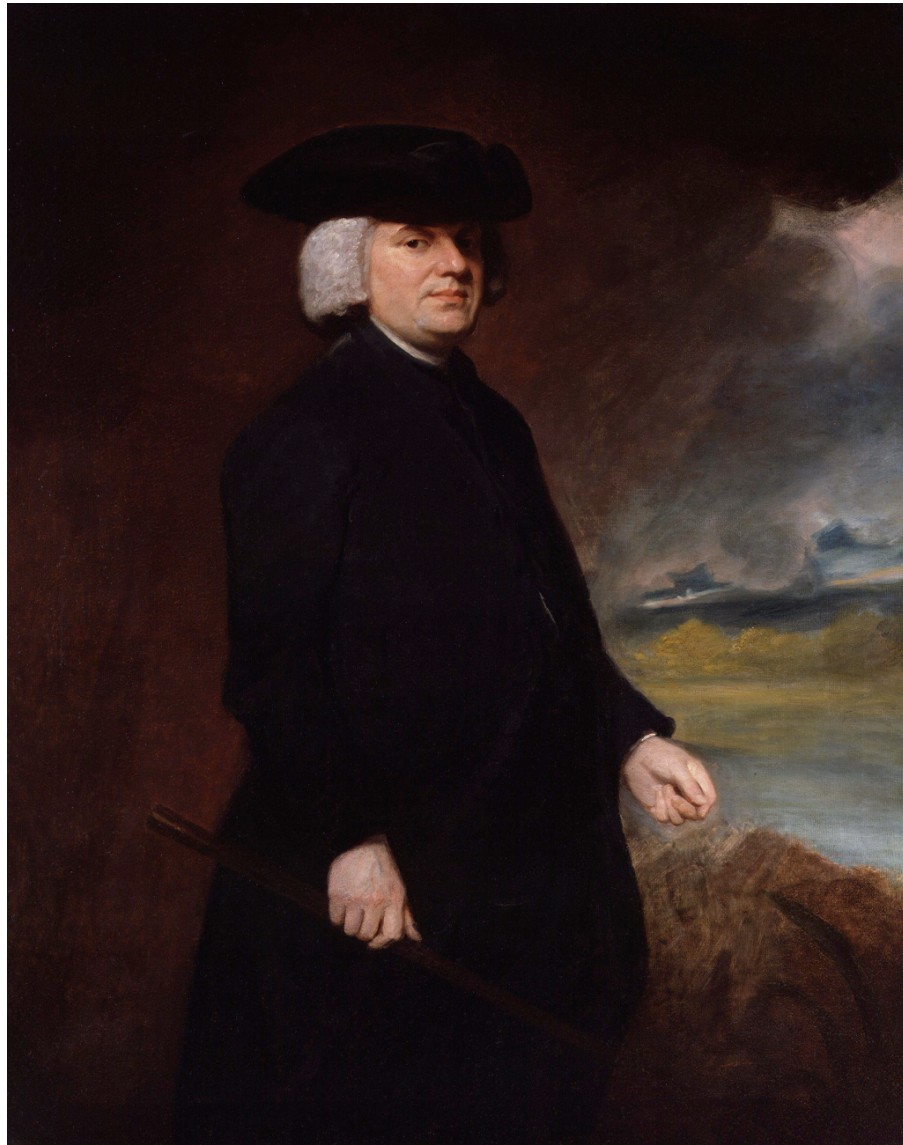
A very influential and related argument was provided by William Paley, an 18th century English philosopher and theologian, in his book *Natural Theology*.

This book is filled with careful and detailed discussions of various facets of the natural world, each of which Paley employs in his argument for the existence of an intelligent designer of the universe. A representative, and historically important, example is Paley's discussion of the eye.

"I know no better method of introducing so large a subjection than that of comparing a single thing with a single thing; an eye, for example, with a telescope. As far as the examination the instrument goes, there is precisely the same proof that the eye was made for vision, as there is that the telescope was made for assisting it. … [the] laws require, in order to produce the same effect, that the rays of light, in passing from water into the eye, should be refracted by a more convex surface, than when it passes out of air into the eye. Accordingly we find that the eye of a fish … is much rounder than the eye of terrestrial animals. What plainer manifestation of design can there be than this difference?"

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"… suppose I found a watch on the ground, and it should be enquire how it happened to be in that place, I should hardly think of the answer … that the watch had always been there. Yet why not? … For this reason: … when we come to inspect the watch, we perceive … that its several parts are put together and framed for a purpose … that if the several parts had been differently shaped from what they are … no motion at all would have been carried on in the machine …"

Let's say that an object has the "marks of design" if its parts are finely-tuned to serve some end, in the sense that, if the parts were different in very small ways, that would make the end impossible to achieve. Then we can represent Paley's argument as follows:

1. Many things in nature, like eyes, show the marks of design.
2. These things must either have been created by an intelligent designer or produced by random natural processes.
3. Random natural processes never, or almost never, produce things with the marks of design.
_____

C. Things in nature that show the marks of design are very likely to have been created by an intelligent designer. (1,2,3)
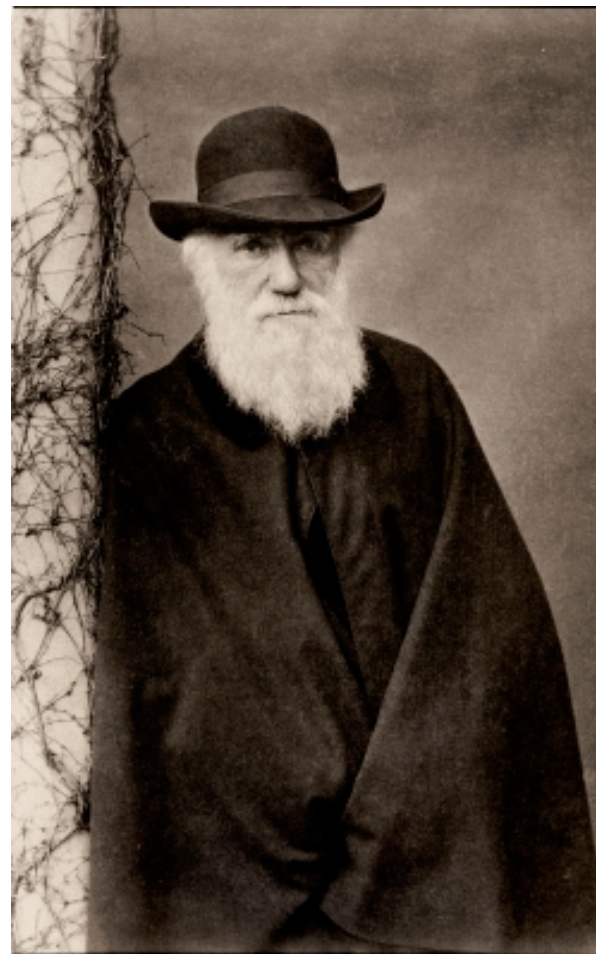
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This argument for God's existence, however, faces an important challenge of which Paley could not have been aware.

This challenge came not from a philosopher finding a flaw in Paley's argument, but rather from Darwin's development of the theory of evolution. This theory provides very strong reason to doubt premise 3 of Paley's argument.

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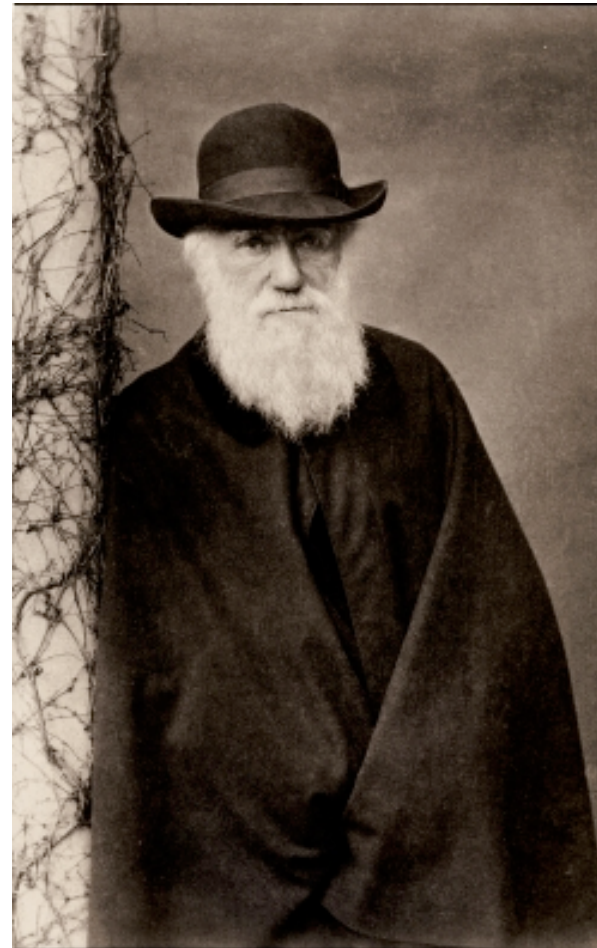


"It is scarcely possible to avoid comparing the eye with a telescope. We know that this instrument has been perfected by the long-continued efforts of the highest human intellects; and we naturally infer that the eye has ben formed by a somewhat analogous process. But may not this inference be presumptuous? Have we any right to assume that the Creator works by intellectual powers like those of man? ... In living bodies, variation will cause the slight alterations, generation will multiply them almost infinitely, and natural selection will pick out with unerring skill each improvement. Let this process go on for millions of years; and during each year on millions of individuals of many kinds; and may we not believe that a living optical instrument might thus be formed as superior to one of glass, as the works of the Creator are to those of man?"

Darwin's theory shows how random natural processes could, over time, produce things with the marks of design. This theory seems to destroy Paley's argument, as Darwin himself noted in his autobiography:

> "The old argument of design in nature, as given by Paley, which formerly seemed to me so conclusive, fails, now that the law of natural selection had been discovered. We can no longer argue that, for instance, the beautiful hinge of a bivalve shell must have been made by an intelligent being, like the hinge of a door by man. There seems to be no more design in the variability of organic beings and in the action of natural selection, than in the course which the wind blows. Everything in nature is the result of fixed laws."

Often very bold claims are made on behalf of the theory of evolution by natural selection; sometimes it is even claimed that the theory shows that God does not exist. It is hard to see why this should be so. But the theory does undermine a historically very important argument for the existence of God.

One might think of Darwin's reply to Paley as posing a challenge to the defender of the design argument: which aspects of the universe are **not** explained by the theory of evolution by natural selection, and yet are such that they are better explained by God than by chance?

Contemporary physics suggests an answer to this question, which is illustrated by today's short excerpt from the book *Just Six Numbers*, by Martin Rees, an astrophysicist and cosmologist. Rees describes six constants which figure in the fundamental laws of nature, and to a large extent shape the nature of the universe. Here is one of them:

The cosmos is so vast because there is one crucially important huge number $N$ in nature, equal to 1,000,000, 000,000,000,000,000,000,000,000,000,000. This number measures the strength of the electrical forces that hold atoms together, divided by the force of gravity between them. If $N$ had a few less zeros, only a short-lived miniature universe could exist: no creatures could grow larger than insects, and there would be no time for biological evolution.

And here's what Rees says about the six numbers:

These six numbers constitute a 'recipe' for a universe. Moreover, the outcome is sensitive to their values: if any one of them were to be 'untuned', there would be no stars and no life. Is this tuning just a brute fact, a coincidence?

These remarks can be turned into an argument for the existence of God. (Though, as we'll see, it is not an argument that Rees himself accepts.) To see how this argument works, we will have to think a bit about what sorts of evidence can confirm a theory.

Consider the following two theories:

T1. It rained last night.     T2. It did not rain last night.

Suppose that I am considering these two theories this morning as I walk out of my front door, and, as I walk out the door, I come across a bit of evidence which might help me decide which of T1 and T2 are true:

E. My sidewalk is wet.

Does E count in favor of T1 or T2? Why?

T1. It rained last night.

E. My sidewalk is wet.

T2. It did not rain last night.

One natural answer is that E counts in favor of T1 because of the following fact: **if T1 is true, then E is quite likely to be true, whereas if T2 is true, E is quite unlikely to be true.**

Using the language of probability, this can be put as follows. To talk about the likelihood of an event happening is to talk about its **probability**, which can be represented as a number between 0 and 1.

We can also talk about **conditional probability**, which is the likelihood of something to happen in the condition that something else happens. When we want to talk about the likelihood of X happening if Y happens, we talk about **the probability of X given Y.**

**The principle of confirmation**

E is evidence for T1 over T2 if the probability of E given T1 > the probability of E given T2.

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This principle suggests the following further claim: if E is *extremely* likely to be true if T1 is true, and *extremely* likely to be false if T2 is true, then if E is true, this is very strong evidence that T1 rather than T2 is true.

Now consider the following piece of evidence which we seem to possess:

LIFE: The universe permits life to exist.

**The principle of confirmation**

E is evidence for T1 over T2 if the probability of E given
T1 > the probability of E given T2.

LIFE: The universe permits life to exist.

And now consider the following two theories about the universe:

CREATION: The universe was designed by a creator
who wanted life to exist.

CHANCE: The basic physical constants of the
universe are due to chance, rather than intelligent
design.

**LIFE: The universe permits life to exist.**

**CREATION: The universe was designed by a creator who wanted life to exist.**

**CHANCE: The basic physical constants of the universe are due to chance, rather than intelligent design.**

The probability of LIFE given CREATION — the chance of LIFE being true if CREATION is true — seems to be extremely high.

One of the apparent consequences of the work of Rees and others is that the probability of E given CHANCE — the chance of LIFE being true if CHANCE is true — is extremely low.

If this is correct, then it follows from what we have said so far that LIFE — the fact that the universe is life-supporting — is extremely strong evidence that CREATION, rather than CHANCE, is true.

**LIFE:** The universe permits life to exist.

**CREATION:** The universe was designed by a creator who wanted life to exist.

**CHANCE:** The basic physical constants of the universe are due to chance, rather than intelligent design.

This is often called the **fine-tuning argument** for God's existence. It may be put as follows:

1. The probability of LIFE given CREATION is extremely high.
2. The probability of LIFE given CHANCE is extremely low.
3. If the probability of E given T1 is much higher than the probability of E given T2, then E is strong evidence for T1 over T2.
   _____
   C. LIFE is strong evidence for CREATION over CHANCE. (1,2,3)

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Note that the fine-tuning argument is in one important respect unlike the other arguments for God's existence we have discussed: it does not have as its conclusion the claim 'God exists.' Rather, it attempts to argue for the existence of God in a way more like the way in which one might argue on the basis of evidence for the truth of a scientific theory.

In that sense it is not really a proof of God's existence. It is an argument that one piece of evidence very strongly favors the hypothesis that God exists.

I want to focus on two main objections to the fine-tuning argument.

The first may be put like this:

## the anthropic objection

We could never observe the falsity of LIFE, since, were LIFE not true, we would not exist! To conclude on the basis of LIFE that CREATION is true is to be like the fisherman who uses a net with a 10 inch hole in it who concludes from the fact that he only ever catches fish larger than 10 inches that there are no fish shorter than 10 inches in the lake.

The case of the fisherman is what is sometimes called an observational selection effect. It is a situation in which one's way of obtaining evidence restricts that evidence to exclude certain things. In such cases, the slogan goes, we should not take 'absence of evidence to be evidence of absence.'

Which premise is the anthropic objection supposed to be an objection to? Which premise would be falsified if we considered the corresponding argument for the conclusion that there are only fish > 10 inches in the lake?

1. The probability of LIFE given CREATION is extremely high.
2. The probability of LIFE given CHANCE is extremely low.
3. If the probability of E given T1 is much higher than the probability of E given T2, then E is strong evidence for T1 over T2.
_____
C. LIFE is strong evidence for CREATION over CHANCE. (1,2,3)

In the fine-tuning case, what is the analogue of the small fish that slip through the fisherman's net?

Here is a different case to consider:

A prisoner is standing in front of a firing squad of 100 gunmen, all of whom are excellent shots. The guns all fire at the same time and, to his surprise, the prisoner realizes that he is still alive, and without a scratch. He infers that the gunmen were not trying to kill him.

Now consider the 'anthropic objection' that the prisoner was subject to an observational selection effect, since, had the gunmen been trying to kill him, he would not have been around to observe the result. Does this show that there is something wrong with the prisoner's reasoning?

Is this case analogous to the fine-tuning argument?

Let's turn to our second objection. I mentioned that the fine-tuning argument is not an argument which Rees finds convincing; let's see why by expanding the quotation discussed above.

These six numbers constitute a 'recipe' for a universe. Moreover, the outcome is sensitive to their values: if any one of them were to be 'untuned', there would be no stars and no life. Is this tuning just a brute fact, a coincidence? Or is it the providence of a benign Creator? I take the view that it is neither. An infinity of other universes may well exist where the numbers are different. Most would be stillborn or sterile. We could only have emerged (and therefore we naturally now find ourselves) in a universe with the 'right' combination.

1. The probability of LIFE given CREATION is extremely high.
2. The probability of LIFE given CHANCE is extremely low.
3. If the probability of E given T1 is much higher than the probability of E given T2, then E is strong evidence for T1 over T2.
_____
C. LIFE is strong evidence for CREATION over CHANCE. (1,2,3)

One can see Rees here as objecting to premise 2 of the fine-tuning argument. We might put the objection like this:

### the multiverse objection

It would be much, much more likely that our universe be life-supporting if there were many universes (a 'multiverse'), since in that case it would not be surprising if, by chance, one of them turned out to be life-supporting. So, given the principle of confirmation, LIFE supports the multiverse hypothesis. And if the multiverse hypothesis is true, then premise 2 of the fine-tuning argument is false.

Here is a scenario which might seem to cast doubt on the multiverse objection.

I am sitting in my office, and I pick up 12 dice and decide to roll them. I roll all sixes. Amazed, I think to myself: there must be lots of people rolling dice in Malloy Hall right now. After all, what are the odds that someone rolls 12 sixes in Malloy in the case where there is just one person rolling dice?

This does not seem to be good reasoning. But it does seem parallel in at least some ways to the reasoning which says that LIFE supports the multiverse hypothesis. Do the two really exhibit the same reasoning? If they do, what is wrong with each?

One diagnosis is that we need to distinguish between two pieces of evidence we might have:

<span style="color:green">Evidence 1: I rolled 12 sixes.</span>

<span style="color:red">Evidence 2: Someone in Malloy Hall rolled 12 sixes.</span>

The existence of many rollers would make Evidence 2 more likely. Would it make Evidence 1 more likely?

If not, then it looks like (given the principle of confirmation) Evidence 2, but not Evidence 1, provides evidence for the many rollers hypothesis. Since in our imagined scenario what I possess is Evidence 1, my inference that there must be many rollers was illegitimate.

But now compare this to the case of the multiverse.

Evidence 1: This universe is life-supporting.

Evidence 2: Some universe is life-supporting.

Which of these, if either, does the multiverse hypothesis make more likely? What does this show about the idea that LIFE supports the multiverse hypothesis?

Suppose one objected that if we have Evidence 1, then we also have Evidence 2. (After all, the latter seems to follow from the former.) Could we use this to defend the inference from LIFE to the multiverse hypothesis?

Suppose that we had independent evidence for the truth of the multiverse hypothesis. Would that pose a problem for the fine-tuning argument? Could the multiverse hypothesis in that situation be combined with the anthropic objection in any interesting way?

I want to close by considering an important limitation of the fine-tuning argument. Because of the kind of argument it is, the argument does not, strictly speaking, show that the existence of God is even probable. What it shows, if successful, is that whatever probability you assigned to the existence of God before encountering these facts about the fine-tuning of the universe, you should raise your probability assignment significantly.

An analogy here might help. Suppose you observe that I begin class every day at 11:26. Now consider the theory that an alien controls my brain and that this alien desires very strongly that this particular class should begin every day at 11:26. How likely is it that class would begin every day at 11:26 if this theory is true? Does this mean that you should think that this theory is likely to be true?

What this kind of case shows is that an observation might count in favor of a certain theory, but that, because the theory was antecedently so improbable, the theory remains quite improbable, even given the observation. Some atheists might take this attitude to the fine-tuning argument: that it significantly raises the probability that God exists, but that theism is still quite improbable, all things considered. They might think this because they think that there are good arguments against the existence of God.

This limitation does not make the fine-tuning argument insignificant. It leaves open the important possibility that the fine-tuning argument might accomplish a central aim of arguments for the existence of God: it might make it rational for someone who did not previously believe that God exists to form that belief.