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SUMMARY KEYWORDS

fine tuning, universe, hypothesis, law, explain, parameters, explanation, natural selection, multiverse, called, constants, physics, protein, chance, outcome, carbon, talking, posit, problem, objections

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What is the fine tuning argument for the existence of God? And what are the top objections against it?

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We think that the fine tuning may be pretty amazing. That's an argument I've found worth checking

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our guests today. Dr. Stephen Meyer is a Cambridge trained philosopher science author of Return of the god hypothesis, a friend of ours hear file and now a star because he was recently on the Joe Rogan podcast some

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physicists are calling the universe a Goldilocks universe. This is what the naturalist materialist is continually fighting, and it's a losing battle. The fine tuning argument is simply Well, thanks, Shawn. It's also exciting to be on your podcasts. That's seems to be the new way that people are communicating. Don't do any talk radio interviews anymore. It's all podcasts. So it is

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podcast. And this gives you a chance to I totally agree. And this gives us a chance to really dive in which I'm excited you because I had you on recently, we talked about the top objections to the cosmological argument. Now we're gonna pivot and talk about the top objections to fine tuning. Now, before we jump in, maybe just brush up for us what is the fine tuning argument for design?

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Well, maybe it's best to to step back even one one step further and just talk about what physicists mean by fine tuning can and how it was covered. One of the first physicists to discover what are called the fine tuning parameters was was Sir Fred Hoyle, the great British Australian, astrophysicist. And he was thinking about the production of carbon and wondering how wanting to account for the prevalence of carbon in our universe. Turns out that carbon has unique properties that are necessary for life makes long chain like molecules that can that are the basis of all organic chemistry. And those molecules can store information for example, some forms DNA, for example. So counting for carbon was what was on his mind. And it turned out to be a very difficult question, and he ended up determining or discovering a process by which carbon could be constructed in the bellies of stars. And it and it resulted in him making a very specific prediction about the resonance level as it was called a frequency where beryllium which had an atomic weight of eight and helium with an atomic way to four could come together to form carbon 12 atomic weight 12, but at a resonance level that is higher than normal, the normal energy associated with the molecule or with sorry, with the, with the carbon atom, and it was a very precise value that would have to exist is is a few if you if you take the wineglass it will make it will sing at a certain frequency. And it turns out, if you sing that, if that frequency of sound is some back to the wineglass, it will receive that with greater facility than other frequencies that is sort of tuned to that frequency. And so similar thing was going on with a carbon atom. And to make it it had to have this, this additional singing frequency to make it in the only way that oil could think it could be made chemically. Turns out, we did an experiment at Caltech. And lo and behold, carbon had exactly that. That thinking frequency, that resonance. And so this was an amazing prediction of an attribute of a carbon atom based on purely astrophysical arguments about what would have been necessary to make it got it. But it turned out that that was, so that was, in a sense, a kind of a fine tuning, it couldn't be otherwise or you wouldn't make carbon had to be right bang on. It was 7.85 electron volts or something, it was that there's a specific number. Yeah, it's in the right. But that turned out to be the tip of the iceberg of a hole. Eight of other things that would have had to be just right in the universe to make carbon. The gravitational force couldn't be too strong or too weak. within a very narrow tolerance, got it the electromagnetic force the same the ratio between the two forces had to be very finely tuned. So what do we mean by fine tuning we mean that we have parameters that fall within very narrow tolerance, tolerances, outside of which some advantageous outcome would be impossible. And the advantageous outcome in this case is life. And as physicists began to investigate many other aspects of the universe that were important, it turns out that to get life to get stable galaxies, to with rocky planets, to get basic chemistry going in the first place, anything beyond the healer, anything more complicated than helium, many, many parameters, the mass of the Quark, the, the expansion rate of the universe, and especially the force driving it call the cosmological constant, the initial combinate, the initial configuration of mass and energy at the beginning of the universe, all these different parameters the the strength of the fundamental forces of physics, gravitation, electromagnetism, the strong and weak nuclear force, all these forces somewhat unexpectedly, have to fall within very, very narrow ranges, and outside of which life, and even basic chemistry would be impossible, such that physicists now refer to the universe as a finely tuned system these days refer to these parameters as finely tuned parameters. And moreover, some physicists are calling the universe, a Goldilocks universe. Not too not too strong, not too weak, not too fast, not too slow, not too heavy, not too light, parameter after parameter falls within these these sweet spots. And the question is, what do you make of it? Well, in our ordinary experience, we also have, we encounter finely tuned systems, we have finely tuned French recipes. Finally, internal combustion engines, we have a fine tuning of the relationship between

software and hardware in a computer domain, when we see an ensemble of parameters that work together in problem and improbably so, to achieve a discernible outcome, or advantageous outcome, or function. We've described that as fine tuning. And what we know from experience is that systems like that, invariably are the product of Intelligent Design is almost by definition, Luke, has written a very important book about the fine tuning called the fortunate universe. This is almost by the ability to select one outcome out of a range of possibilities in order to achieve a desirable outcome or function is almost by definition, something we associate with a mind that's what minds do. So you have a dyed in the wool scientific atheist, like Sir Fred Hoyle, who makes these discoveries, and then changes his scientific philosophy or worldview, and is later quoted as saying, a common sense interpretation. A common sense interpretation of the evidence suggests that a super intellect has a monkey with with chemistry. Why is it common sense? Well, because when we see fine tuning in any other realm of experience, and we have at least a rough and ready definition of what we mean by a finely tuned system, it invariably is the result of intelligence. So it is the common sense interpretation. Now, in the book, I unpack the logic of that design inference a little bit more using some of the theoretical framework of William Dembski, work on the design inference, and we can talk about that if you'd like. But for now, the fine tuning argument is simply the idea that in our experience, what we call fine tuning, again, an improbable ensemble of separate parameters that jointly function to achieve a discernible or significant outcome. When we see fine tuning is the result of a fine tuner, is the result of an intelligent agent having made a choice to actualize one out of a vast ensemble of possibilities to achieve a discernible or functional outcome. And so that's the art. And the argument, then is that since that I took this from the very beginning of the universe, the best explanation for the origin of that fine tuning is a transcendent mind. And therefore, a transcendent mind. Who has the attributes that we typically associate with God, this is this is evidence for theistic design. Not even, for example, a space alien designer within the cosmos. Origin that's right of the fine tuning from the very beginning of the universe because the space alien designer would have had to evolve, evolve long after the beginning.

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That was a great explanation helps a ton. Now we're going to walk through some a dense keys filter, could it be law, could it be chance, we're going to walk through all these common objects actions. Let's jump in one by one and take them. Some critics will claim if I'm not mistaken, the late atheists Victor Stanger might have made this point. But I know I've heard this argument made, that this fine tuning is merely hypothetical. It's not actual. It's hypothetical. So this is challenging within itself, that these parameters actually exist. Are you out on a limb as kind of a Christian Scientist, same as fine tuning? Or are there other scientists that agree with you? And why is this not a reasonable challenge? In your estimation? Well,

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Luke Barnes in his book, The fortunate universe, which he wrote with his PhD supervisor from Cambridge, whose name I'm dropping at the moment, well, they they co wrote the book, and it was all about the fact of fine tuning. Okay. And then they have a dialogue, a Socratic dialogue between the two of them at the end about how to explain it. Yeah. But is that there was no doubt between either of them about the fact of fine tuning. And they listed at the end of the book, dozens and dozens of physicists of all philosophical persuasions, who regard the fine

tuning as a fact of physics, a fact that needs to be explained. So I don't actually even know what Stinger means by it's merely hypothetical fine tuning. What does that mean? The fact is that if any of those parameters were different, there would be for very significant and obvious reasons, we would have a universe that would be different and that that universe would not be would not be conducive. Now, it may be hypothetical in the sense that we don't observe those other universes. But if we had a cosmological constant that was off by one part in 10, to the 90, in either direction, the universe would either have collapsed into a giant black hole, or it would have, or we would have a heat death. Now you can say it's hypothetical, but because we don't see that universe Well, fair enough. But that's basically saying that, that our understanding of what that physical force is doing is of no account that we really don't understand what the cosmological constant is doing. Well, it's the force that causes the expansion of the universe. And if it was not, if it was not pushing outward, with the strength that it has, it would push outward with a weaker strength, and if it did, then the force of gravity would predominate and then we would lapse into a black hole. So this is just a matter of, of good physical reasoning based on what's understood about gravitation and the cosmological constant. So to say, to dismiss it as merely hypothetical, is also to dismiss physics itself.

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Okay, so let me put this into context. Some people would say, to dismiss to dismiss evolution would be to dismiss biology itself. Now, there's this list descent from Darwin, last I checked, it's been a while at least 1000 PhD scientists who are skeptical of the Neo Darwinian synthesis, still a minority, but a significant minority. Is there even more confidence in fine tuning? As you compare it to say biological evolution? How would you compare the two of those? Or is it a fact that really all over the stripe that virtually everybody accepts in the world of physics, as far as you know?

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I've had an exchange with Lawrence Krauss about fine tuning in, in the journal inference, and Krauss attempt, cross offered alternative explanations for the fine tuning, he didn't deny that it exists. Stephen Hawking is talking about the fine tuning and very prominent businesses. So I don't, this is not really fine tuning is not a theory, it's a fact. It's a fact, of physics, as discerned by studies of what how our universe is put together, and what the likely consequences of the change of any of these parameters would be, given what we understand about the the function of the strong or weak nuclear force or the force of gravity. It's based on our, our understanding of what these basic forces do, or parameters do so. Okay, just That's great. It's not a contentious or, you know, what's what can be controversial is how you explain it. In the so, you know, philosophers may exactly, explanation them in the explanations. The explanation them is not the thing to be explained is not controversial. The competing explanations perhaps.

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Excellent. So there's, we know it's fine tuned, but why it's that way. And what this tells the universe is the question we'll get to getting back to Dembski is designed filter. What he does for those who maybe are not familiar with As he looks a certain way, you might call natural explanations before he comes to design. And one of the things he talks about his chance. So

how do you rule out chance given there? So I'll just leave it there, instead of painting the picture. How do we know we don't just happen to live in the universe? Are these parameters happen to be in a narrow range in which we can exist? Well, there's

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two different there's two different chance hypotheses. One is a chance hypothesis that does not make use of any probabilistic processes or resources beyond our universe. Okay, and then another invokes okay called will other universes in a hypothesis, known

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as the multiverse? And we'll come to that, by the way, we'll come to the multiverse let's do the multiverse

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maybe later, or whichever you are. Just the pants hypothesis as well. Okay. Yes, it's it's super improbable. But you know, hey, there's a chance remember the old sketch with Jim Carrey and the approaches and attracted down and dining? Yeah, he'd like to ask her on a date. And he says, What are the chances that a guy like me, and a girl like you could get together? And she says, well, not good? And he says, What do you mean? Not good? I mean, one in a million, or one in 100, whatever. He says, Yeah. million, or one in a billion. And so he starts, and he says, All you mean, there's a chance. And what's, of course, he's telling him is, you have no chance, but he, you know, go away, you're bugging me. Exactly. And, and so, you know, we have with the fine tuning, many of these parameters are, are independent of one another, some may be reducible to others, but there are there, there is an ensemble, a set of these parameters that are independent of each other. In some cases, the the the fine tuning associated with even individual parameters puts this beyond the realm of chance in our universe, you have the fine tuning of the initial conditions of the universe, what's called initial entropy, fine tuning, has been calculated by Sir Roger Penrose, the great Oxford physicists. One, one chance in 10 raised to the 10th power, raised to the 120/3 power, it's what's called a hyper exponential number. We have something like 10, to the 80th elementary particles in the universe. Wow, here's, here's, here's one, we can get our minds around. The, the fine tuning of the cosmological constant is one part intended, the 90 F is an accepted value. We so that the odds of getting that that right are roughly the same as the odds of a blind person floating in space, trying to identify one marked elementary particle in our universe, but not just in our universe, but having to look possibly in 10 billion universes our size as well. But there's one particle hidden in that vast expanse of possibilities. Well, it's a chance there's a possibility, but it's overwhelmingly more likely that such a random search will fail, than it is that such a random search will succeed. And therefore, the chance hypothesis is also more likely to be false and true, if you think that's how it happened. And it's more likely that such a random process of searching will fail than succeed, then it's also more likely that the chance hypothesis is going to turn out to be false and true. And in science, we prefer explanations that are more likely to be true than false. And so we have good grounds for rejecting that hypothesis. Here's another little illustration that Luke Barnes uses, which gives a kind of Bayesian take on this. He says, imagine that you are approaching, there's been about a bank heist, and some breaks into the vault, the room where

the vault is, and there's a 12 digit keypad and the person types in the numbers right away, and the door opens, takes the gold off he runs with as much gold as he can carry or whatever it was currency. Now he says no, imagine that right? You have you're looking at the video. And you know, there's there's two possible explanations, it was either an inside job or it was a pure random fiddling random random guessing hypothesis. You're looking at the the keypad the the the Robert is about to type in the number on the, on the random fiddling hypothesis, he's just gonna, you know, the random ranking this, what do you now expect will happen next? Okay? And he says, well, the overwhelming expectation probabilistically is that the, the vault will not open yet because there is it's if it's a 12 digit pad, you've got one in a trillion chance of finding the right number he says you don't have you don't have a way of x, you don't know what the likely code will be. But you know that, that with one in a trillion minus one probability or with a trillion minus one. Okay? All right numbers are gonna give you the wrong code. Okay, so your overwhelming expectation is that the vote won't open. On the other hand, if you have if your hypothesis is that it's an inside job, what you're going to expect that you'll have a much greater reason to expect that the code will be typed in correctly pop it will open. So the point is that what we see when we see then roll the tape forward and and the vault opens, is much more expected on the inside job hypothesis than it is on the random fiddling hypothesis or random poking hypothesis. And therefore, the what we see confers more support to the design hypothesis, the Inside Job hypothesis than it does to the to the random poking hypothesis, in fact, calculate support, it's overwhelmingly more likely that the one is the true hypothesis than the other. Now, we can't be absolutely sir. But we're dealing in the realm of Bayesian probabilities. And on our Bayesian analysis, we have more reason, we had more reason to expect hypothesis or outcome A than B. Therefore hypothesis, the predicted outcome A is more likely to be true than the hypothesis that predicted outcome beat. So that's another another way of explaining the logic behind the rejection of the chance hypothesis.

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That's great. So Dembski is first kind of filter is to look at chance mathematically and probabilistically not absolute certainty. But the odds are so infant testily small that we reasonably lock it out, rule it out as a good explanation. Dembski moves down his filter, he says, okay, so it's not chance for say fine tuning. What about law? Maybe there's some natural law or regularity that causes these laws to be fine tuned, or constants as they are? Why don't you buy that explanation? And by the way, scoot to the middle for me, if you will, a little bit. I'm drifting. I see. You're fading. A little bit more to the middle of the other drift flips it. Perfect. Maybe

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closer? Yeah, there you go. Okay. You don't have to worry about this on talk radio. That's true. I get we got to fine tune my positioning. Exactly. Well, this is it takes a little more. Subtlety, there's a lot more subtlety to this too, involved in the explanation, but it takes a little bit of an appreciation of how physics works. Let's take an example of a string oscillator, a guitar string, okay. And there are equations in physics or physical laws, there's a physical law called Hookes law that describes the harmonic motion, the waveforms that will result if a if a string is plucked. And the equations are differential equations actually have a number of solutions there you could have, you could have just one, you could just have two waves a high wave and a low wave, or you can have eight waves. So there's lots of different outcomes that will result that

are consistent with Hookes law. And to know which outcome is going to to, to result you need to know in addition to the law, which relates variables in an equation, you also need to know how hard the string was plucked. Okay, that's called an initial condition. That's information that the law doesn't give you that has to be provided experimentally. You also have to know in this case, what are called the boundary constraints or boundary conditions, you know, in this case, that would be how wide apart are the pegs that hold the string, because they can be very wet long, very short. And the outcome that you get describable by Hookes law will depend upon those boundary constraints. Now the law does not give you that information. It doesn't give you the boundary constraints or the initial conditions you have To determine that by experiment. Now, all of the physical laws, the most fundamental laws of physics require these external inputs information, if you are to be able to get outcomes to describe specific outcomes. So in the case of the fundamental law, the four fundamental force laws, you, you have to know initial conditions. Some applications would require under constraints, but you also need to know what are called the constants of physics. So, if you take, for example, the Newton's law of gravity, the classical gravitational force law, the force of gravity equals the mass of the first body times the mass of the second body divided by the distance between them squared, M one m two over R squared, okay? Or D squared depending on which variable you want to use. But that won't give you a specific value for gravitation. It turns out, there's a constant that also has to be provided, this is called the constant of proportionality. And what that ends up representing is all the other forces in play or factors in play in the universe that determine the strength of gravity, that are not determined by your knowledge of the variables in the law, the M one m two over a distance squared, okay? It's a sort of catch all thing that has to be determined experimentally. Once you know that gravitational force constant apparently applies, always in everywhere in the same way, then you can make calculations as to the specific amount of gravitational force that's being exerted by say, the moon on the earth, given our knowledge of the mass of the moon, the mass of the Earth and the distance between them. But you also have to know this constant. And it's the constants that are extremely finely tuned, if they were off one little smidge one way or another, then we don't get we don't get a life friendly universe, we don't get basic chemistry, we don't get lots of the good things we want, we don't get carbon. Okay, so. So all of the physical laws have this attribute where, in addition to knowing the basic variables, and the relationships between the variables, there have to be extrinsic inputs have information, to allow the laws to provide precise descriptions of physical processes. And the point is, the laws themselves, the logical structures of the laws, do not give you that information. They don't care if it's logically extrinsic to the laws, whether we're talking about the strength of the initial conditions, the constraint, the constants of physics. It turns out that the values of those of those, first of all the values of those constants of proportionality are highly idiosyncratic. They're very specific, and they're rendered in different units, depending on which law you're talking about. So the idea that there could be one law that would give you a simple relationship between all of those is implausible in the extreme because they're not even describing some of the, the finely tuned constants, don't even are don't even have units. Some of them have very specific units, they're not even talking about the same thing. So it's a law like relationships are relationships that describe regularities, or, or relations that regular relationships between between variables that can and and these different, the constants are not, they're not even tendered in the same units. And they have highly irregular, they, as a group represent a highly irregular ensemble of values, not the kind of thing that could be reducible or describable. With a simple law, you think you can think of the law of gravity in its simplest form is all unsurpassed suspended bodies fall, so I raised the wall, I dropped the wall. Okay, I do it again. And again, and again, and I get the same thing happening over and over again, there's nothing irregular, nothing idiosyncratic, and complex. It's regular and orderly. That's what laws describe the ensemble of values involved in with these constants of proportionality are highly irregular, highly idiosyncratic. They're gathered in different units. They're not the kind of thing that can

be subsumed. Simple just does, description or over, since all laws require initial conditions to render precise descriptions of physical processes. And initial conditions exist, at the end, the ultimate initial conditions or the initial conditions of the universe, and that's one of the things as finely tuned, let's call the initial entropy. One of the things I mentioned, hyper exponential number, you're not going to get a law, that reduces, you're not going to get something that reduces that to a law, when that is a necessary condition of any law, providing an efficacious description of reality, that before there, before laws can kick in and describe laws take antecedents and generate consequences, or they described starting with an antecedent and generating a consequent, and you only get a knowledge knowledge of a consequent, once you have an initial set, you have initial information about the initial conditions provided. But the one of the things is finely tuned, is the set of an ultimate initial conditions, the initial arrangement of matter and energy, the beginning of the universe before any laws are even operative. So I just don't think you're going to get away from that there's this idea that you can have one single theory of everything, and that you assume all of the laws into one law, and then thereby, we will be able to explain everything in the universe by reference to this, this one law. But that's not the way laws work, you can only predict outcome. And if and thereby explain outcomes, if you know, initial conditions. And if you have boundary conditions, delimiting the range of parts of the scope of the laws, and if you know those constants of proportionality, all of which are intrinsic to the logical to the structure logically, of the law itself. So even if we get a theory of everything, it's not going to explain everything it will be so general, here's one more cut on this. Okay. Okay. It was subtle, but I actually, I had the temerity to take Stephen Hawking on in my PhD dissertation and the introduction about this, because there's, there's a confusion among physicists often about the distinction between laws and causes, causes provide explanations, particular events, can laws describe general regularities, things that always happen? It makes sense because they're so resistant, because they're so general, they're too general, to constitute explanations, they don't constitute the difference that makes a difference. Here's an illustration. Imagine that we have an apple, and it falls to the earth. Okay. That's the gravitational force that in some way, describes that motion. It applies equally well to a rocket ship that is lying to the moon.

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So the law is very general, it applies everywhere and always throughout the universe, throughout space and time. But it's so general, it doesn't explain the difference that makes a difference in those two motions, one going up one going down. The difference that makes the difference is the way in which matter has been configured the way the boundaries on the systems have been delimited. In the one case, to make a rocket ship and the other case to allow wind to knock an apple an apple off of a tree. It's the material conditions, that explains why one thing was able to fly and why the other had to fall. The difference that made a difference is not the law, but the configuration of matter, and knowledge that the information about that has to be fed into the structure of the natural law, to give us a prediction, to enable us to predict an outcome. So even if we if we could go beyond just the law of gravity and subsume all four of the fundamental force laws, then we would offer to you already have something that's so general, that it could never explain anything, it could only describe a constant force that was always active, but thereby so consistent, that it couldn't explain the difference between one outcome and another. That's

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great. That's really, really helpful. I was asked this week this very question. Speaking of high school and college students, I said, if there's some law that requires the universal result, like it does, does seems like this bumps, intelligent design and information up a level, I still want to know why we have that law that results so suspiciously in such a fine tuned universe. And of course, I credited you for that. So we're looking at Dembski filter looks at chance, look at law, other options that people will put in there, not necessarily Dembski filters, but other naturalistic options would come from somebody such as cosmologists Lee Smolin, who has proposed an evolutionary scenario in which singularities within black holes, spawn new baby universes that have slight adjustments in their physical parameters. So eventually, we get a universe that is fine tuned for life. Your take on this model?

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Well, it's subject to the same problem, the multiverse hypothesis is subject to talking about a universe generating mechanism. And the his, his hypothesis requires such a thing to get heat. It's a quasi Darwinian type of cosmology. Right? You get universes new university birth lection. Among the among the options, and the ones that are most friendly to life. survive, but I'm not sure what's driving that selection process. In any case, I mean, there is problematic at many levels, okay. At the deepest level, any universe generating mechanism will generate new universes, turns out itself must be finely tuned. And this is the problem with the multiverse, which is the more current version of the chance hypothesis? Well, we don't have enough, we don't have enough opportunities within this universe to render the fine tuning parameters probable. But if we posit a billion other universes out there someplace, we can we can then hope that maybe our universe was the lucky universe that got just the right combination. Now, I may as well go, let me do the multiverse. Okay. Yeah, let's

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do it first. So

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we'll come back to smoking, because it's actually a very an on that theme. Okay. So and this is this is the go to thing right now is the multiverse. off center again, how you look great, you're fine. You're good. So you know, the multiverse is the idea that there are billions and billions of other universes out there. I sometimes say a gazillion. And, and not so many fact that a universe with our life friendly set of parameters had to arise somewhere. And we just happen to be the lucky one. We mistake the improbability of the fine tuning in our universe as evidence of design, when it's actually just a quote, observer selection effect, that we are the lucky winners have some sort of cosmic lottery. But that's the that's the trouble with the brute multiverse hypothesis. If all the other universes are causally disconnected from our own, then whatever happens in those other universes, has no effect on what happens in our universe, including whatever process is responsible for the improbable setting of the fine tuning. So it doesn't actually help explain the improbability of the fine tuning to know that there are other universes out there, if they're causally disconnected with our own. So in virtue of that, multiverse proponents have proposed universe generating mechanisms. And they have some reasons from physics for considering that maybe these these processes are actually real. So one of

those ideas is that what's known as the inflationary cosmological model, that there's this the there is the expansion of the universe. And when the force causing that expansion, called an infinite time field begins to decay, it hits a sweet spot where it causes another universe to bubble universe to emerge out of that original universe. And that process goes on indefinitely in future. Another idea is that string theory that equations of string theory correspond to other universes with different laws and constants of physics, for example. But here's the rub. It turns out that in every one of these speculative cosmological models for generating new universes, that the the universe generating mechanism now oh, wait, first, the advantage of that for the multiverse proponent that would allow us if you have if you have a common cause of all the universes including our own, that would allow us to portray our universe as the lucky winner of a cosmic Okay, okay. Okay. But that's always the causally disconnected problem by saying, Okay, there's a common cause a common causal process, but there's, there's a deeper problem. And that is that the these, these universe generating mechanisms themselves require in each case, even in theory to generate new universes, they would require prior fine tuning. Okay. And so you're right back to where you started with prior, unexplained fine tuning, okay. And we the physics of this in each case is different, but an analogy will get the problem across. If I say I've got the proverbial monkey and a typewriter, and I want the monkey to type Hamlet, if the monkey has an infinite amount of time. To do that, it will eventually not only type Hamlet but all the other works in the English language. But if the keys aren't positioned properly so that when the keys are struck a ribbon with a letter in front of it presses to the paper. Nothing will happen if there's no age, all bets are off, you're not going to get hammered. If there's not an H key, the typewriter itself has to be set up in a particular way got to generate that infinite number of possible outcomes. You can't get specificity of outcome without specificity of income. It's it is this is what the the naturalist the materialist is continually fighting. And it's a losing battle. They want to explain our universe with all its specificity of form. But they want to either reduce or reduce all that to a nonspecific law, something that's very regular and not complex, or to a causal process that itself requires prior fine tuning specificity to ensure the kinds of outcomes that we need to explain. So it's, it's it's a squaring the circle problem, I think for naturalism

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United a full show on the multiverse, I'll link to it below. And so for those who want to go further, we look at the different multiverse type verse hypotheses, one of my favorite examples, you talked about his house, even in science fiction, like the what if series on Marvel, there's these figures between the multiverse regulating them which even in science fiction, you said, we know, the multiverse doesn't get rid of a need for intelligent design. So folks who want to go deeper, can check that out. Let's move on to another naturalistic hypotheses. And this was interesting, because just yesterday, I was having a conversation with an agnostic friend of mine, and he raised this. It's one of the two objections to fine tuning that Richard Dawkins raises in The God Delusion. And the first one is, the discovery of natural selection should raise our consciousness of the power of natural forces, in fields outside of biology. So look into natural selection and its success when we didn't expect it should tell us in other areas, in other words, that if we just probe deeply enough, we're going to find a similar kind of crane. I think he calls it in physics, your thoughts?

42:13

Wow, how much time do you have? Natural selection among I attended a conference in 2016.

But by the way, this is part of the Smolen idea, right? He's, he's got natural selection of new youth. Right. Okay. So this will, this will speak to that. But let's just back the train way up on this one. I went to a conference in 2016 at the Royal Society called by evolution evolutionary biologists, who are doubting the creative power of the natural selection random mutation mechanism in biology. The opening lecture at that conference was given by an Austrian biologist, Gerd molar, who enumerated the explanatory deficits of natural selection, the main one of which among five that he enumerated was the lack of creative creative power associated with the mutation selection mechanism, it does a nice job, very nice job of explaining small scale variations within the framework of within an existing gene pool or the framework of, of a body, plant or animal. But it does a very poor job and enact completely inadequate job of explaining large scale morphological innovation, small scale variation, yes, morphological innovation, no. And that problem can be taken right down to the level of the most fundamental unit of biological innovation, which is a protein fold. Colleague, Doug axe, who's now at Biola, spent 14 years at Cambridge investigating the rarity of functional genes and protein folds within what's called combinatorial sequence space. If you think of a amino acid chain, with made of the different 20 different protein forming amino acids, and you think that a protein is made of a long chain of amino acids, so he's investigated a protein that was 150 amino acids long, given that there are 20 different protein forming amino acids that could link together at any one of those sites, there are 10 to the 195th power 20 to the 150th power, possible arrangements. Now, what x did was investigate how many of those possible arrangements are functional and how many are not to get an ultimate ratio. And he found that the ratio of functional to non functional arrangements was one over 10 to the 77th power. Now, that's a bit of an improvement. But that's a that's an enormously small probability. And so what that implies is that a random search through combinatorial sequence base is going to be overwhelmingly more likely to fail than to succeed in finding even a one new protein in the known time of, of life on Earth. And I run numbers on this in my book share Darwin's doubt, we have similar numbers in signature in the cell when we're just talking about getting the first protein in a prebiotic setting. Well, recently, there's been even more work done on this that shows that not only are the proteins highly, highly rare in sequence space, they're highly isolated from one another. The rarity measure that got implies, implies isolation as well. If you have only three dots, three tiny islands on planet Earth, you're not going to be able to connect them easily going from one island to another, you won't be able to you won't be able to find a, a path that will take you allow you to circumnavigate the earth by jumping from one island to another, the islands are simply too rare to form an archipelago that will give you the ability to move incrementally from one, one island to the next. Now the Darwinian mechanism envisions a series of small incremental changes and variations, each of which are functional. The islands in this case represent functional stable prototype poles. But if they're too rare and also too isolated, you're not going to be able to get from one to the other in a Darwinian manner, by by in by producing random changes. This intuition that follows from acts as a measure of rarity has been confirmed by a molecular biologist and protein scientists, Dan Tawfik, who unfortunately has only recently passed away. and Israeli will also worked in the same lab that x worked out in Cambridge, but was not at all sympathetic to access sympathies for intelligent design, okay. But he has said that the origin of new proteins is akin to a miracle. There is no evolutionary mechanism, it explains how you get from one stable protein structure called a fold to a fundamentally different stable protein structure, another protein fold. And this is and this is why he came to that conclusion, he performed mutagenesis experiments similar to the kinds of acts performed, and found that if you started with a protein, you started mutating the DNA for building a protein that had a stable fold that between three and 15 mutations are sufficient in every case of the globular the different globular proteins examined to cause the protein to lose its thermodynamic stability, and therefore, unravel. And proteins have very specific three dimensional structures that allow them to perform very specific biological tasks. If they lose

that three dimensional specificity, they are no longer protein, they are no longer function ready, they can't perform a function. But to move from one protein fold to another, would require many more than just 15 mutations 15 changes in the sequencing of the amino acids. And so his experimental results, confirm the mathematical analysis that you would do to suggest that extreme rarity implies extreme isolation, he showed that the protein folds are isolated, biologists use the idea of fitness peaks to get this across, there's a whole lot of changes around one fitness peak, variations on an existing protocol that will maintain function sometimes even optimize it. But if you start to if you want to change it enough to get a fundamentally different three dimensional structure that performs a fundamentally different type of function, you're going to have to drop into a functionalist abyss before you ever get there. And therefore, that abyss corresponds to a structure that's not selected that performs no function, and is not selectable in a Darwinian way. Okay, that's a long explanation. But what's the point? If you can't explain the origin of Newport protein folds, and that is an unsolved problem in evolutionary biology, as it tested by leading protein scientists who don't like intelligent design, but who are now saying the origin of new proteins are essentially a naturalistic miracle. We don't know how it happens. Then, extending that idea to explain the origin of body plans in biology, or the origin of religious belief, or the origin of other human behaviors, let alone the origin of new universes is an extrapolation isn't sort of extrapolation. Let's solve the problems that the mechanism is facing. If the biologists before extrapolating to use a mechanism that lacks creative power, to explain other phenomena outside of biology, they better get their own house in order first, he may not be able to, they may not be able to. And okay, one other thing to say about this as this whole approach has been tried in origin of life research. Because the idea of natural selection is that is that nature selects for functional advantage, it preserves those those variations of in a group of offspring that confer an advantage on the one or two or few offspring that have the variation. If, if an advantageous variation arises during reproduction, that variation is passed on to the next generation and preserved, and then incrementally incremental changes could conceivably build up. Now, there are reasons to doubt that that mechanism works for body plans or developmental gene regulatory networks, or even protein folds. But that's the idea. But notice watching suppose it presupposes self replicating organisms. So some scientists in the 1960s, Alexander Opar, and in fact proposed prebiotic natural selection, as a way of explaining the origin of the first life that there was some sort of natural selection taking place before you had life. And no less of a luminary in evolutionary biology than theodosis of Jansky. So that that's really the incoherence strategy. Because you need self replication, before you can get natural selection going. And you only get self replication once you have self copying organisms. So but all self copying organisms are able to copy themselves because they already have DNA replication at work, which is to say they've got information rich DNA and proteins. And that was the very thing that origin of life scientists were trying to but could not explain. So it was a completely question begging approach to the subject. Well, fast forward, they tried it again, with the so called RNA world and said, Well, maybe we could just get a self replicating molecule, an RNA that has information for building other RNAs. And then if there's variations when the natural selection will select the RNA molecules that are a little bit better at copying themselves, and you'll eventually end well. problem there was, among many others, first of all, RNA is famously fragile. And we're not what not hold up to such a process. But secondly, even to get RNA to copy a portion of itself in the laboratory. And the best we've been able to do in the lab is to get a self copying RNA molecule with a can copy about 10% of itself. Wow. But even to achieve that limited capability for self replication, what has to be provided very specific arrangement of the nucleotide bases along the RNA chain, which is to say, an intelligent agent has to first provide information to produce that self copying capability. What are these experiences? Experiments are simulation experiments, where the present is thought to be the key to the past, well, if in the present, you always need information to produce self copying. And if the information

always has to come from a mind, what do you what are you saying? Yeah, you're simulating the need for intelligence to generate information, even to get your a a weak Lee analogous process to natural selection going.

53:51

This is really helpful argument,

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extrapolation of this mechanism, and the basis, you know, it's being used to explain, you know, the propensity towards violence of human behaviors. I mean, get in your own lane guys solve your own problems there if you can, but please do not project this as the catch all explanation for everything even cosmology.

54:16

Hmm. Dawkins has a second objection, which is actually more philosophical, that I know you've thought about. He says, any designer who fine tuned the universe would be so complex that it would require the same kind of explanation. So if we have an intelligent designer, this still needs a higher level explanation because such designer we need to be even more complex. And supposedly this will go on and on and on and ultimately solve nothing.

54:46

Your thought who designed the designer objection? Well, there's first of all, the sauce for the goose to come play that game you can you can say the Ultimate explanation is a self replicating molecule. But you can't. But the self replicating molecule as we've just described requires a prior explanation that actually is can't be can't be provided within the framework of the Darwinian process, you know. So, every system requires a primitive it requires something it requires every philosophical system requires positing a primitive a thing, the thing from which everything else came, okay. And the two great systems that have been in competition in Western philosophy since the ancient Greeks are materialism, and theism or some variants of of each of dialectical materialism, you have deism you have, and you have pantheism. As well I deal with all these different worldviews in return the god hypothesis and evaluate their explanatory power. But the the, every you can always, if you think matter and energy are eternal and self existent. And you want to start with some material state as your ex ultimate explanation. You can always say, Well, where did that come from? And you have an infinite regress problem and materialism every bit, as you do in theism, right? Or you just posit something as the eternal existence, self existent thing that required no prior cause. And that could either be a material state, or it could be a mental state, it could be a mind or an agent. So the question then becomes, as we're evaluating which of these two metaphysical Systems provides a better overall explanation, the question is not, which is subject to a potential infinite regress problem. Both are all such systems are, because we can always think about something before that. But rather, which is a better candidate to be the thing from which everything else came, the thing, the better candidate to be the explanation of all the things we see around us.

What happens that all the things we see around us, we now call the universe, and the universe had a beginning. So matter and energy, are, I think, very poor candidates to be the eternal, self existent thing from which everything else came because they began to exist. And what begins to exist, I think, requires a cause. I think that's a that's a basic principle of rationality. And so So I think that the, the Big Bang Theory, the evidence that we have supporting it the the proofs of cosmological singularity, the board Guth have a link and proof, the very different the very, the multiple lines of evidence or developments in theoretical physics that are either pointing to or proving a beginning, I think suggests that that that a transcendent intelligence provides a better overall explanation of the of the let's put it this way is a better candidate to be the eternal, self interested thing that that does matter. The matter seems to require something to bring it into existence.

58:28

That's great. There's also the question of if a mind is capable of bringing fine tuning things minds are necessary, not complex in the same way that a computer or a watch, you know, there's certain assumptions that Dawkins has worked into this. This

58:43

has this weird buying outcomes raiser to say, Well, that's it, explain a molecule in terms of or if you explained DNA in terms of a mind, then you're explaining something that's complex in terms of something that's more complex, and that's a violation of Occam's razor. Occam's razor. You can think of a mind as a simple thing, or you can think of it as a complex thing to depending on the way you cash that out. But in either case, it's a misapplication of Occam's razor. That's right. Our goal is that you should not multiply theoretical entities needlessly. And what the and what the theistic design hypothesis does, is precisely respect Occam's Razor it posits a singular a single theoretical entity, whereas the multiverse for example, which is the go to explanation now for the fine tuning, posits not only a billion other universes, a quasi infinite number of other universes, it also posits at least two separate universe generating mechanisms, each of which entails the need to affirm the existence of multiple other theoretical entities on you unpack that a little bit. It's actually a very striking point philosophically, it turns out that the inflationary cosmology because you're just spinning out new bubble universes within the universe you started with does generate new initial conditions, but it doesn't change the laws and constants of physics. So it doesn't actually generate by itself enough of the right kind of universes to render our universe with two types of fine tuning. plausible, we have fine tuning of initial conditions and fine tuning of laws and constants of physics. So the the inflationary cosmology would in the best of cases only account for the improbable fine tuning of initial conditions, but not the laws and constants of physics. Okay, and conversely, string theory, which is also invoked as a universe generating mechanism can conceivably generate new laws and constants of physics, because each of the string theoretic equations is thought to correspond to new laws of physics and the way you have this thing called the lines of flux. And the way they wrap around strings is thought to correspond to new constants of physics, but it does nothing to generate new initial conditions. So in virtue of that, you now have the string, inflationary cosmology, multiverse, the string theorists, or multiverse proponents have actually conjoined these two models. So when you begin then to count the number of theoretical, purely theoretical postulates, purely hypothetical entities that the multiverse proponents have to affirm, you end up with a, I counted about 10. In my mind, we

have to believe that strings are the fundamental basis of reality, vibrating strings of energy, you have to believe in extra dimensions of space, you have to believe in an infinite time field, you have to believe in the lines of flux that wrap around the strings. You have to believe that that finely tuned in photonic shut off energies will in fact, generate new universes. There's a whole suite of theoretical postulates that you have to posit in order to explain the phenomena that the one single postulation of a transcendent mind explains simply beautifully and consistently with our experience, we know that minds generate finely tuned systems, we have no equivalent experience of any of these hypothetical entities generating fine tuning. fine tuned finely tuned systems. So sure, I think that's another reason to prefer the theistic design hypothesis over the multiverse. It is simpler in the alchemist raiser sense, and Dawkins application of of the multiverse of the Dawkins razor principle is, is is is not apt. It's it's not, it's not what's meant by simplicity. The entity itself can have no complexity to it, it's rather if the entity exists, if we know a mind if we know minds exists, then there's there's an inherent simplicity in positing something which is known to exist and has known causal powers.

1:03:23

Steve, one of the reasons I love interviewing you is because I learned stuff myself every time even though I've read your book multiple times, you go into depth in your book returning the god hypothesis. Let me I guess I have three left for you.

1:03:36

Can I say one thing about the insurance thing? I mean, sure, you have a monster best seller, 3 million databases, you know, influence many, many, many young people in particular. And you have a biologist, whose specialty was snails, who who's made a well deserved reputation for himself as a science popularizer. Because he writes beautifully. And he frames issues beautifully. But the lack of depth philosophically, of his reasoning about these things is kind of breathtaking. There, and I just have to say this is not these are not persuasive objections to fine tuning or anchoring, or I mean, and there's so much more to say about these arguments that he doesn't engage in these books, and many, many good, good theistic responses that he doesn't engage. At the end of the day it ultimately the books represent a kind of a straw man because he does not take pains to engage his most sophisticated or rigorous interlocutors, he's not taking the strongest version of the theistic argument across any of these classes of evidence, and I think people to be aware of that I've complimented Dawkins because I do love the way he but I do On this point, when you get into what he's written in these in these monster best selling popular books, they don't go very deep. And they specifically do not address the best arguments on the other side. And I've taken pains to do that in my work. And I think it's incumbent upon them to do the same thing, I don't think they do it.

1:05:21

And we push back with three. And I'm gonna ask you to give me kind of your soundbite responses, because I also want to respect your time here. Okay, so so you could go into obviously depth on these, but maybe say, here's just one reason why I'm not convinced by this. So let's take a very serious thinker like Roger Penrose, who said, there can be other solutions for design for which we are not yet aware and cannot verify.

1:05:48

You're in a court of law, you have a lot of evidence presented. Was it a natural cause? Or was there malfeasance, you find the bloody knife? You under uncover the the motive? You identify the opportunity, you have eyewitness testimony? Now you're asked to render a verdict? Well, maybe there'll be new evidence that will come along someday, and you'll find that you were wrong. But at some point, we have to make decisions based on the evidence that's in front of us. That's a kind of materialism of the gaps argument that says, We have I remember when Anthony Liu still in his atheistic manifestation, debated. Alvin Plantinga, on the BBC, I think it was, and blue said, Well, there's a presumption of atheism, which he could get away with saying, talking to lesser minds, the planning just laughed at him and said, No, there's no presumption of atheism, the you've got atheism, you've got theism, you've got other competing metaphysical systems, you've got to make a case for your perspective as much as anybody else. Now, next question. So there's so a lot of this idea that well, we'll just wait because, you know, there's, you know, we'll couldn't be later on we'll find out something new. Well, yeah, maybe. But, but when you get to a formidable body of evidence, that's all pointing in one direction. And then when each new point, a piece of evidence continues to point in the same direction, at some point, it's reasonable to render a verdict. It can be you can say, from a philosophical standpoint, it's not absolute, we're not absolutely certain, because we're never absolutely certain is provisional, in the sense of science, always provisional. But the best explanation we have is that, in best we can tell the universe had a beginning, the best we can tell us, it was finely tuned, the best we can tell there's digital code and cells, you know, what do we make of that? And I think the best explanation of all of that is, is theistic.

1:08:01

I do agree at some point, the evidence does demand a verdict. So I'm with you on that one, my friend. Two more are spies. family. My mom came up with it, interestingly enough, but that's a whole Yeah, she did. That's a that's a whole nother story. So here's one. Another objection that will hear is when you are good, the universe is designed, so much of the universe is in a splittable to life. So it seems like it's not designed if only a small narrow amount can actually support life.

1:08:33

You can turn that one either way, you can think as Carl Sagan says, this might sign a plum in the remote corner of a insignificant solar system in the remote corner of an insignificant galaxies, vast universe of 2 trillion other galaxies. Or you can appeal to divine extravagance and to say, we're the special place that we're the privilege plant. I think that's largely an aesthetic judgment, I don't think you can settle the argument about what we see as evidence design, on our planet, with our, with our species, with the life on our planet, and why God chose if you accept the design hypothesis, you can ask the further question why God chose to make so much else that may not where there may not be life. I just think it's a wonderful, beautiful, fascinating universe and, and that such extravagance was expended in the process of making us to enjoy it says something about the infinite resources available to the Creator. That's a theological sense, right respect in a reflection. But so is the claim that God wouldn't have done it this way and therefore it's false. I think we have to deal with the more primary evidence of

design or no design, the universe does not. In Dawkins, his framework he says the universe has exact Finally, the properties we should expect if at bottom, there's no purpose, no design, wait a minute, no ample evidence of design, and the fine tuning and the digital code and the complex information storage, transmission and processing system. All of these things are what you would expect if an agent had been at work. Maybe one with some skill in Computer Science and Engineering even are knowledge of the principles that underlie such endeavors. It's not what you'd expect from blind, pitiless indifference, which is the rest of his quote. So I think on Bayesian grounds, the universe we see is much more to be expected from a design perspective than from a no design perspective. But that doesn't mean that there aren't still questions about why this than that. Why this? Yeah. But I think the primary evidence that we need to look at points strongly in the design direction, and I can easily think of theological explanations for, for extinction, or, or why there is no life on other planets that we've discovered yet. And maybe there will be life on other planets that will turn the possibility of life on other planets into an anti theistic argument as well, when I think, you know, on biblical grounds the Bible's completely neutral on an agnostic on that question, we just don't know, you know, so a lot turns on that theologically, one way or another, but it's a possibility, you know, so

1:11:29

excellent. Last one for you that I heard, in fact, just yesterday, or the day before talking about this with some folks? Well, if the universe had different laws of physics and constants, then other forms of life could have or would have evolved to match those different parameters.

1:11:49

Um, that objection can be formulated different ways. Sometimes the formulations lack some precision. The first thing I'd say is that we have to explain ultimately, what we're trying to explain is what we see around us. And that's life as we know it. So it's easy to posit other chemistry or other physics that would produce life. But what we know is that the basic laws of physics that we encounter are not by themselves set up to allow for life, you need the fine tuning of the initial conditions, the fine tuning of the, the constants of physics, you need these other contingent factors to be just right. And that's one of the ways that we detect the activity of agency in our experience generally. So the life as we know, it seems to have required fine tuning, which seems therefore to imply intelligent design. Now, the other postulations about what could generate other chemical bases of life, for example, silicon based life are, are chemically implausible. It happens that carbon uniquely has it has unique properties that no other atom has. And we need fine tuning to get carbon. That was the oil speculated about about silicon based life for a while. And finally, and finally gave up on it. Because it's just it's silicon is, you know, close to carbon in the periodic table. It has similar some similar properties share, but it's not nearly close enough. But there's something else to say about this. It's, there's a variation on this objection. Lawrence Krauss made it in the exchange I had with him in the journal inference. Yeah, he said, The it's not that the lie life arose because there was prior fine tuning. It's that the evolutionary process accommodated that prior fine tuning to produce life. Life evolved in accord with the fine tuning that was already there. And so there's really nothing to explain. This is like Lincoln's old saw about, isn't it great that a man's legs are long enough for his to reach the ground. But of course, they're going to reach the ground because there's a gravitational force ensures that Well, alright, by analogy, crosses, arguing Well, of course, life evolved, consistent with the fine tuning that we see because the evolutionary process would

only work in a chord with the fine tuning that was already there it would it evolution is taking advantage, if you will, are functioning, operating within a matrix of already established finely tuned parameters. And it's going to produce life because it's the evolutionary process. And so that's what explains the origin of life. The fine tuning is neither here nor There we had to evolve in accord with the fine tuning. But there's a really obvious problem with that and you would not evolution itself will not ensue. There's no possibility of an evolutionary process. Apart from prior fine tuning of exquisitely probable prior fine till said, if the cosmological constant is not finely tuned, the universe is either going to blow apart or we're going to get a black hole. And we're not going to have any biologically relevant fine evolutionary process taking place in a black hole, or in in a universe that's been subjected to heat death. We won't get rocky planets of some just that one parameter has to be finely tuned. Same with the initial conditions of the initial entropy, fine tuning and the mass of the core. A lot of the things we won't get even basic chemistry past the healing amount atom without fine tuning of many parameters. So evolution presupposes prior unexplained improbable fine tuning. doesn't explain the origin of life in accord with it.

1:16:11

Steve, this is great. There's obviously other objections to fine tuning that are out there not pretending we covered all of them but you go through those in your book. I've read it multiple times. It's fantastic return of the god hypothesis return to the god hypothesis. If you're a believer or not, you owe it to yourself to wrestle with this because in my view at some of the strongest, most persuasive but graciously written case for design, Steve, Well done, always love having you on.

1:16:40

We will I hope you have time at the Comic Con with your son.

1:16:44

Ah, you spilled the beans. I've taken my 10 year old son No, it's fine. Taking my 10 year old son to the Comic Con hence I got my spider man shirt on. But I kind of wear Spider Man shirts anyway. So we are sneaking out.

1:17:00

Go ahead. We didn't weak or strong anthropic principle. We did not explanations for fine tuning, but they are amply discussed in the book so and we've had

1:17:10

some that'll give us something to come up and do another show. In the future. I won't wear out my welcome but you better believe I'll come knocking to have you back. We love your partnership at Biola. We will have you back if you'll do it to teach another class again, our

apologetics program. You're one of our students favorites when you come out for a weekend so we'll definitely invite you back to do that. So folks watching if you've ever thought you want to learn apologetics, we've got the top rated distance apologetics program I teach classes on evil resurrection and we have the best guest lectures such as Dr. Meyer on the planet informations below if you're not ready for that we actually have a certificate program. We'd love to just kind of walk you through a little bit more formal apologetics training and there's a significant discount code below. Make sure you hit subscribe. I've got some other programs coming up on this topic and more you will not want to miss but Steve normally I'd stay after and we would catch up and chat. But I'm running a Comic Con with my 10 year old. Thanks for hanging out brother. Okay, good. Good to see you my friend.