

## Can You Explain the 5 M's? | Part 1

(April 21, 2023)

### Frank:

Ladies and gentlemen, why do the material, mental, and mathematical aspects of reality exist? Why is there anything material? Why can we mentally know about the real world? And why is the universe describable in mathematics? The other day, I was listening to a podcast by Dr. William Lane Craig. His podcast is very good. It's "Reasonable Faith" with Dr. William Lane Craig. If you haven't listened to it, you probably ought to avail yourself of it.

In any event, in this podcast, he was talking about a dialogue he had with Sir Roger Penrose a number of years ago (maybe three or four years ago), on Justin Brierley's "Unbelievable" program. They had a dialogue and Dr. Penrose is a Nobel Prize winner in physics. He is 91 years old now, according to his Wikipedia page. He is regarded as one of the greatest living physicists. He worked with Stephen Hawking. He won a Nobel Prize just in 2020, regarding black holes and general relativity.

And during this discussion that Penrose had with Craig, Dr. Penrose was trying to figure out a way to integrate the material, mental, and mathematical aspects of reality. What worldview could account for all three of those aspects? And Dr. Craig suggested, well, theism does. And I guess, after the program off camera, Dr. Craig said, you really ought to consider theism. And Dr. Penrose said, well, I never really considered that. So, thank you. I will consider that.

And it got me thinking, that kind of is a good question. How can you explain the material, the mental, and the mathematical in one worldview? And then I got to thinking a little bit more. And I said, well, it's not just the material, the mental, and the mathematical. There's a couple of other M's you need to explain if you're going to have a comprehensive worldview. You don't just need to explain the material, the mental, and the mathematical. But you also need to explain the moral world. Why do we have moral obligations, for example? And you have to explain also the metaphysical world, which of course, would include the material, mathematical, and moral, but would go further than that.

And so, what I'd like to do today is discuss what I now am calling the five M's: the material, the mental, the mathematical, the moral, and the metaphysical world. Any worldview, any comprehensive explanation of why reality is the way it is (which is how I would describe a worldview), must at a minimum explain the existence of these aspects of reality. It's interesting that Dr. Penrose, according again to his Wikipedia page, you can't always trust that, but I have no reason to disbelieve what they quote here...because it says under his religious views, back in 2010, he said this.

He said in 2010, I'm not a believer myself. I don't believe in established religions of any kind. And he said he regards himself as an agnostic. However, in the 1991 film, "A Brief History of



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Time", I guess, that's trading on Stephen Hawking's book of the same name. Dr. Penrose said this. He said, "I think I would say that the universe has a purpose. It's not somehow, just here by chance. Some people I think, take the view that the universe is just there, and it runs along. It's a bit like, it just sort of computes and we happen to somehow by accident, to find ourselves in this thing. But I don't think that's a very fruitful or helpful way of looking at the universe. I think that there is something much deeper about it."

That's what Dr. Penrose said in 1991 when he was, I guess, about 60 years old. Now, as I say, he's 91. And so, when Dr. William Lane Craig suggested that if Dr. Penrose is going to get a more comprehensive worldview that can explain the material, mental, and mathematical worlds, he ought to consider theism. And I think Dr. Craig, of course, is correct. Theism can explain the material, mental, mathematical, moral, and metaphysical worlds that we find ourselves in. Let's just take a look at each of these. The material world.

If you're going to say that you have a worldview that can explain all this, you have to have some explanation for why a material world exists at all. What created the universe? Why is the universe here at all? The famous question posed by liveliness: If there is no God, why is there something rather than nothing at all? And as we pointed out a few weeks ago, here on this podcast when we did the podcast related to the fact that we are sure that the universe had a beginning: S.U.R. E. is an acronym. You can go back and listen to that podcast.

The universe had a beginning. The material world actually had a creation point. You can know that by science, you can know that by philosophy. As we pointed out, from a philosophical perspective, you just can't go on an infinite regress of time. There's got to be a beginning to time. Otherwise, today never would have arrived. There has to be a beginning to time. Otherwise, we would have never gotten to today. If there were an infinite number of days before today, this day, today, never would have arrived. But since it has arrived, there must only be a finite number of days before today. So, something outside of time brought time into existence along with space and matter.

Space, time, and matter came into existence. That appears to be true, not only by philosophy, but also by science. And if that's the case, as we pointed out on that podcast, whatever created space, time, and matter has to be outside or transcend space, time, and matter. The cause must be spaceless, timeless, immaterial, powerful, personal, and intelligent in order to have a mind to create a universe like this. So, the material world needs to be explained, the creation of it, and then the fine-tuning of this universe. And it seems to me there's fine-tuning in at least three different areas.

There's fine-tuning to the initial conditions of the universe. There's fine-tuning to the constants of nature, meaning the numbers we plug into the equations that describe nature. For example, the gravitational constant that's put into the equation that describes gravity. That has a very specific number. If that number were slightly different in either direction, we wouldn't exist. Not only

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would life not exist, but perhaps, a universe at all wouldn't exist, basic chemistry wouldn't exist. So, you've got the initial conditions of the universe, you have the constants of nature.

And then the third aspect seems to be the physical attributes of our solar system. We've talked about this at length before, the fact that the sun is so far away. And we have a moon, and we have an axial tilt that's precisely 23.5 degrees, and the earth rotation being 24 hours is just right. You know, faster or slower, we couldn't have life here on this planet. I mean, there's just so many aspects of our solar system. You know, Jupiter has to be a certain size and distance from us to attract asteroids to it rather than us.

The distance between the stars in our galaxy at 30 trillion miles is just right. All of these physical attributes of our solar system in our galaxy have to be explained. They appear to be fine-tuned. They appear to be, in other words, designed. So, why are they the way they are? They could have been different. They could have been different across a vast spectrum, or a vast range. Yet, they're precisely what they needed to be for us to exist here on Earth in a life permitting way.

And now there are many other aspects that we're going to get to right after the break. You're listening to "I Don't Have Enough Faith to Be an Atheist", with me, Frank Turek on the American Family Radio network. Check out our website [CrossExamined.org](http://CrossExamined.org). Also, check out our midweek podcast. "I Don't Have Enough Faith to Be an Atheist." We're back in two minutes. Don't go anywhere.

If you're low on the FM dial looking for National Public Radio, go no further. We're actually going to tell you the truth here. That's our intent, anyway. You will never hear this on NPR. How can we bring together the five M's: the material, mental, mathematical, moral, and metaphysical world under one comprehensive worldview? The best explanation for that, ladies and gentlemen, is theism, particularly Christian theism. And we'll get into that hopefully later in the program. By the way, I want to mention there's a lot coming up.

You know, the CrossExamined Instructor Academy, that's CIA. We run it every year. This year it's going to be in Albuquerque, New Mexico starting on July 28. If you want to learn how to be a better apologist, how to present and answer questions, you need to be a part of CIA. As they say, we only run it once a year. You've got to go to [CrossExamined.org](http://CrossExamined.org). Click on Events. You'll see CIA there.

I'll be one of the instructors out of many. We'll have Greg Koukl. We'll have Brett Kunkel. We'll have Allen Parr. He's joining our teaching team for the first time this year. We'll have Alisa Childers, Bobby Conway, Natasha Crain, Richard Howe, Jorge Gil, several others. You need to go and check it out. And you need to apply. We don't just take anybody. We only take about 60 students. I think we have maybe 45 signed up so far, so there aren't many seats left. If you want to be a part of it, go to [CrossExamined.org](http://CrossExamined.org). Click on Events. You'll see CIA there.

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Three full days. And you not only get to hear from many great apologists. You also will present to us so you can improve your presentation and question answering skills, and we'll hang out a lot. We have meals together. You can ask any instructor any question you want, either in the session or outside the session. So, people love coming to CIA. Check it out. Alright, let's go back to our discussion today. We are talking about, how can we integrate in one worldview, the things that we know exist? The material world exists, obviously. The mental world, the mathematical world, the moral world, the metaphysical world. How do you put all these things together?

And we've been talking about the fact that the material world, to explain that you've got to explain why the universe exists. You've got to explain why it's fine-tuned. You know, some atheists will say, well, the laws of nature, they explain everything. No, the laws of nature had a beginning. And the laws of nature are precisely fine-tuned. Where do laws come from, by the way? They come from law givers. And why are they so persistent and consistent? Why is nature going in a direction? This is the argument that Aristotle originally gave, that there has to be an unmoved mover. He didn't mean that there had to be a beginner to the universe.

He didn't even think the universe had a beginning. He thought it was eternal, mistakenly. But he thought it was eternal. What Aristotle was saying is that every single second the universe exists, it needs a cause. Because why does nature do the same thing over and over again? Why does an acorn, if it's properly nourished, always become an oak tree? Why does it become an elm tree, a birch tree, or a seahorse? Because it's programmed to become an oak tree. Well, who programmed it? Why is nature going in a direction?

I mean, an acorn isn't conscious. An acorn isn't sitting in the ground going, alright, how do I become an oak tree? No. It doesn't have a mind, but it reliably goes in a direction. If it doesn't have a mind, yet it reliably goes in a direction according to Aristotle, he said, well, there's got to be a mind directing it. Thomas Aquinas came along in the 1200s AD, and he said, this is going to be my fifth way to argue for God. Why is the universe so persistent and consistent? Why does it go in a direction? Because there's a mind behind it. In fact, God is to the universe, what a band is to music.

If a band is playing music, the band is creating and sustaining the music. What happens to the music though the second the band stops playing? The music is over. Same thing is true with God. He creates the universe, and he creates the natural laws that govern it, and he sustains those natural laws. I mean, why don't they change? Everything else changes. Everything in nature changes except the laws themselves. Why is that? Because there's a mind behind it. Why is the universe orderly? Because there's a mind behind it. Why can we do science? Because there's a mind behind the universe. And these laws of nature do the same thing over and over again.

We couldn't do science unless nature was orderly. We couldn't detect reliable cause and effect, if physical reality was random. Of course, we couldn't live. We wouldn't be here. So, all of this

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points back to a mind. And of course, this is what the Scriptures say. In Jesus, we live, and move, and have our being, and Christ holds all things together. And the writer of Hebrews says God sustains all things by his powerful word.

By the way, I unpack this argument in more detail in the book "Stealing from God: Why Atheists Need God to Make Their Case." So, if you want to go further, you can. But notice, again, this is not a Big Bang cause that I spoke about earlier. This is a right now cause, a cause that is vertically holding up the universe. It's not a horizontal cause from way back when. It's a vertical cause every single second the universe exists.

So, you have to explain why the material world is this way. You also have to explain by the way, the creation of life, and the creation of new life forms. Yeah, they're material. Where did they come from? I mean, of course, life isn't just material. We'll get to that in a minute when we talk about the mental aspects of reality. But why does life exist at all? We're going to have James Tour on this program, at some point. For those who don't know, Dr. Tour is a brilliant researcher down at Rice University. And he's an evangelist as well. He's a nano technologist who has I don't know how many patents. But he's brilliant, one of the top scientists in the world.

And he goes after the people who say, oh, yeah. We know how life began without intelligence. He just excoriates them. We know that, of course, life did come from non-life at some point. The question is, how did that happen? And there is no explanation from just the natural world. And it's not a God of the Gaps argument to say that intelligence is required. Why? Because it's not just that we lack a natural explanation for life. But life itself appears to be the product of intelligence. There's positive evidence for an intelligent being, who brought life into existence.

And we've talked about this many times here on the program with Dr. Stephen C. Meyer and others. And at some point, we'll have Dr. James Tour on to talk about this. It's my hope, anyway. We spoke together at a conference that The Discovery Institute put on in February in Dallas, Texas. In any event, it's not just the creation of life that needs to be explained. You also have to explain the creation of new life forms. And of course, we've done that on this program before. Where do new life forms come from? Even if you were to say, it's a completely natural process driven by the laws of nature, you still need an explanation for the laws of nature.

So, you're not getting away from a law giver. Even if macro evolution could explain through natural processes how we got here, you're still not getting rid of, it seems, a law giver who created these natural laws and sustains them. But of course, that's just one of the five M's, the material world. But everything can't be reduced to materials. What about the mental world? That's the second M you need to explain if you're going to have a comprehensive worldview.

Like for example, the laws of logic. Why do these laws exist? They're not material. They're mental. Why do they exist? Why is the law of non-contradiction a fundamental rule of all thought? Why is there a law of the excluded middle? You know the law of the excluded middle? Either God exists, or he doesn't. There's no middle alternative. Either you're pregnant, or you're

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not. There's no middle alternative. Right? These are fundamental laws of logic that you use to discover everything else. You can't prove these by, say, more primitive laws. These are the most simple and foundational laws of thought. You reason from these laws. You don't reason to them. You reason from them.

They are the ground of all knowledge; the laws of logic are. The law of identity, the law of noncontradiction, the law of the excluded middle. Why do these even exist? I think they're grounded in an ultimate mind. What we would call the mind of God. You can't say they're human constructs. Why? Because they existed before human beings even existed. In fact, for even me to say that, that they existed before human beings existed, I'm presupposing laws of logic.

In fact, I had a dialogue once at the University of Wisconsin at Madison, where I had just gone through the evidence that God existed. And I said, given the fact that space, time, and matter had a beginning, the attributes of this cause must be spaceless, timeless, immaterial, powerful, moral, personal, and intelligent. And this one graduate student got up to the microphone and said, you said that God has to be spaceless, timeless, and immaterial. Can you name anything other than God that is spaceless, timeless, and immaterial? I said, yeah, the laws of logic.

And he said, well, I would argue that the laws of logic don't exist then. And so, I said, so you're saying they do exist? And he said, no. I'm saying they don't. I said, no. You're saying they do exist. He said, no. I'm saying they don't. I said, no. You're saying they do exist. He said, how am I saying they do exist? I said, because you're using the laws of logic right now, to contradict me. You can't think a thought without the laws of logic.

He tried to say, well, human beings just make them up. And I said, well, are you saying that the laws of logic are just a human construct? He said, yeah, that's it. And I said, let me ask you this question. Before there were any human minds on the earth, was the statement, there are no human minds on the earth true? Well, he didn't like that. Because he knew he was caught, then.

Of course the statement was true, even though there was nobody there to make it. Because in a certain sense, he was correct, that the laws of logic have to be grounded in a mind. But they're not grounded in human minds. They're grounded in the ultimate mind, the mind of God. Because before there were any human minds on the earth, there were truths that existed, even though there were no human minds to express them. So, the material world needs to be explained, as well as the mental world. And the mental world is the world of logic and the existence of minds. Why do minds exist? Why can we through this podcast, think about things together?

Why can I think about something and express it, and then you can hear it, and think about it, and try and discover whether what I'm saying is true or not? Why can you know this? Why can we even dialogue? We'll talk more about it right after the break. You're listening to "I Don't Have Enough Faith to Be an Atheist" on the American Family Radio network. And if you're listening on

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the American Family Radio network, we have a midweek podcast that is not broadcast on AFA. You've got to check it out on the podcast. We're back in two minutes. Don't go anywhere.

How can you explain the five M's? Does your worldview explain the five M's: the material world, the mental world, the mathematical world, the moral world, and the metaphysical world? That's what we're talking about today? Because it seems to have a worldview, the true worldview, you need to explain at least all of those five M's. And right now, we're talking about the mental world. Why do the laws of logic exist? Why do our minds exist? Why do we have free will? You're saying, well we don't have freewill. We're just molecular machines.

Well, if we're just molecular machines, as the atheists say, if they're going to deny there's a mental world, they've got a big problem I'll get to in a minute. But let me say this. We all intuitively understand we do have freewill. We have the ability to make choices and follow the evidence where it leads. We have the ability to reason. If we didn't have freewill, we couldn't reason. We couldn't come to valid true conclusions except by accident. So, we do know certain things are true, and other things are false. And we know that because we have these laws of logic, and we have our senses, and we take information from our senses and run them through the laws of logic and try and make valid conclusions about the real world. That requires freewill.

If you don't have freewill, if you're a molecular machine, you couldn't understand anything. You'd have no warrant to believe anything. Also, our ability to recognize natures and patterns in nature. When I say right now a tree, you automatically in your mind have some kind of idea of what a tree is, even though I haven't described what kind of tree. Right? I mean, I could be thinking of an oak tree, an elm tree, a birch tree, a Japanese maple, a palm tree, a weeping willow tree. They're all trees.

You can know that different patterns exist, and some are caused by intelligence, and others are caused by just natural forces, like water, or wind and rain. In order to recognize natures and patterns in nature, you have to have some explanation for why we can recognize those things. And in order to do science, you have to be able to recognize those things. Einstein famously said, the most incomprehensible thing about the world is that it's comprehensible. Because from a naturalistic perspective, if you just think everything's material, and those other four M's don't exist, as many atheists do today. They just think the material exists. But they don't think the mental, the mathematical, the moral, or the other metaphysical aspects exist, even though they use them every day.

You kind of know what treeness is. When I use the word tree, you have some idea of what a tree is, even if it's not specific. That's a nature. You have to recognize nature. If I say human being, you know that nature. If I say dog, you can have an idea of what a dog is, even though I may be thinking of a Chihuahua. You might think of a Great Dane, right? But they're all dogs. There's a dog nature, there's a human nature, there's a tree nature. And you can understand patterns in nature. You can understand the difference between waves lapping up against the shore, and seeing in the sand of that shore, someone who scrawled "John loves Mary."

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They have to steal from God to use them. They have to steal from God to argue against him. And what Einstein is saying is that it's incomprehensible that we can comprehend things. Why can we? Well, you can't explain it by pantheism. You can't explain it by atheism. You can only really explain it by theism, or at a minimum, deism. There's got to be some mind out there that explains all this. And if you're going to say you're just a molecular machine, if you're going to say that every thought you have is the result of the laws of physics, if you're going to say you're a moist robot, you've given up thought completely. You've given up science completely.

And of course, atheists try and pride themselves on being beacons of reason, and defenders of science. Well, you've made reason and science impossible by your denial of the mental world, by you just saying that everything's made of molecules. In a quote that I've used several times before, it's so good. Whenever I give this quote to audiences, I usually hear gasps because C.S. Lewis said this so well. Let me remind you of the quote. And this was from one of his broadcast talks on the BBC. It ultimately made it into "Mere Christianity", but not in this exact quote. Here's what he said, apparently on the BBC, at one point.

"Suppose there were no intelligence behind the universe. In that case, nobody designed my brain for the purpose of thinking. Thought is merely the byproduct of some atoms within my skull. But if so, how can I trust my own thinking to be true? But if I can't trust my own thinking, of course, I can't trust the arguments leading to atheism, and therefore have no reason to be an atheist or anything else. Unless I believe in God, I can't believe in thought. So, I can never use thought to disbelieve in God." That's where I hear the gasp. People go, uh. Man, he's so right.

If your worldview can't explain why we can think, you can't use thinking to say God doesn't exist. Oh, you can try. You just can't justify it. You're stealing from God while you're arguing against him. You're stealing the world of the mental. You're stealing the world of the metaphysical, in order to say that the mental and the metaphysical don't exist. You're sawing off the branch upon which you sit when you say that. So, you can't use the mental while denying the mental exists. You're stealing from God. And as I just mentioned, but let me say it more explicitly, science depends on all five M's.

The existence and persistence of the material world, which includes the laws of nature, are required for science. Our mental ability is required for science. You can't do science if you can't think and if you don't have the freewill to follow the evidence where it leads. You can't do science without mathematics. You can't do science without morality. Well, why not Frank? Because if you're not honest with your results, you're not going to get good scientific conclusions. You have a moral obligation to report your findings accurately. And you can't put morality in a test tube. You're not going to find morality by looking at the periodic table, or just by looking at materials.

Morality is an ought. Materials are an is. And so, you need morality, and you also need other aspects of the metaphysical world to do science. Not just the mental, not just the mathematical,

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not just the moral. But you need, for example, the principle of uniformity, that causes in the past are like those in the present. You can't get at the past, you can't discover how certain things came into existence, or how certain effects were caused by certain causes in the past, unless you can assume that the past works just like the present.

For example, when Napoleon's forces found the Rosetta Stone, and they saw those three different languages on the Rosetta Stone, they immediately said, this has got to be the product of intelligence. Why? Because they knew that natural laws don't create languages. They don't create messages and engrave them into stone. They know it had to be the product of a mind. Well, they're using the principle of uniformity to say that. We know that today natural laws can't do that, and only minds can inscribe languages, and thought into a stone. But what if 1000 or 2000 years ago, those natural laws could do that? Well, then you have no way of knowing whether it was a natural cause or an intelligent cause.

You have to assume the principle of uniformity in order to discover what really happened in the past. Is it a good assumption? Yeah, I think so. Because if the laws of nature were different in the past, we probably wouldn't be here at all to know it. Okay? So, there's an entire metaphysical world. Or there are metaphysical principles, natures. I already mentioned them. You need those to do science. You need to know that every effect has a cause. That's a metaphysical principle that you have to assume to do science.

So, you have to assume all those things in order to do science. What about the third aspect of reality that needs to be explained? The mathematical world? Why does the universe exist within extremely narrow mathematic parameters? And this is part of the fine-tuning argument. And why can the universe be described in the language of mathematics? Why do our three pound brains have the ability to use the laws of logic and our sense perception, to look at things outside of our skulls, and then apply mathematics to the things outside of our skulls to describe what the real world out there is really like?

Eugene Wigner. Let me just read a little short section from "Stealing from God", just a paragraph here. I said that men of genius who are not theists have pondered these questions: why mathematics applies, why we can reason and know the truth about the real world. Einstein said the most incomprehensible thing about the universe is that it is comprehensible. Physicist and mathematician Eugene Wigner wrote in a famous 1960 article called "The Unreasonable Effectiveness of Mathematics in the Natural Sciences. He wrote this article, and he was asking the question, why can the physical world be described so well mathematically?

He offered no firm answer. Einstein and Wigner were pondering these questions, because they are fundamental, or I should say they are foundational to math and science, which cannot be done without an orderly world and orderly minds. This is from my book, "Stealing from God." They know that as mathematicians and as scientists, they are using math in order to understand the real world. But why can we do that? And why are the equations that describe reality so elegant?

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I'm not a mathematician, so I can't really describe what they mean by that or understand what they mean by that. But basically, they appear to be saying that the laws that describe reality are in some way beautiful. They're in some way elegant. They're not ad hoc. They're not put together with scotch tape and duct tape, so to speak, to use a metaphor. They are elegant, and they describe so much so well. Why is that? Well, it's not described, or I should say it's not explained by just materialistic atheism.

How could math be described by materialistic atheism? Math is immaterial. It seems to be best explained by a mind, the mind that we would call God. This world, this universe is set up on a mathematical grid. And our minds can understand that and reveal, discover these elegant equations, because theism is the best explanation. I'm Frank Turek We're back in two minutes. Don't go anywhere.

Welcome back to "I Don't Have Enough Faith to Be an Atheist" with me, Frank Turek on the American Family Radio network. We're talking today about the five M's that every worldview needs to explain if it's going to be a worldview that has enough explanatory power and scope to be the true worldview. You've got to at least explain why the material world exists, why the mental world exists, why the mathematical world exists, why the moral world exists, and why the metaphysical world exists. And so far, we've been through the material, the mental. We're right in the middle of the mathematical.

Before I go any further, let me give you some math dates. These are some dates coming up. April 30, I'll be at Freedom Life Church in Christiana, Pennsylvania, not far from Philadelphia. Then on May 1, the next day, "Digging Up the Bible." That's going to be here, near Charlotte, North Carolina. That's a men's Bible study where we film our TV program, which is found on DirectTV channel 378, every Wednesday night at 9pm. It's also streamed on our website, CrossExamined.org. It's also on Roku. So, check out Roku. Look for the NRB network on Roku.

"Digging up the Bible", we're going through the top archaeological discoveries. We'll be right smack in the middle of the Exodus on May 1, you want to check that out. Next day, Concord Christian Academy in Concord, New Hampshire. Day after that, University of New Hampshire at Durham, 7pm, Wednesday night, May 3. Everybody's invited and it will be live streamed. You may want to check that out if you're anywhere near the Durham, New Hampshire area. Pray that event goes well. If you would, all these events. And pray my voice holds up. I lost my voice on my last trip, just speaking too much.

Then the "Unshaken" conference, May 6. Go to UnshakenConference.com. I'll be there with my friend Alisa Childers and Natasha Crain. All the details on the website. That's out at Calvary Chapel, Chino Hills, California, one of my favorite churches in the land. And the next day, I'll be co-speaking with my friend, Pastor Jack Hibbs at the Sunday services, that's May 7th. May 13th, "Digging Up the Bible", again. We'll be live streamed. May 18th Summit, out there in Manitou Springs, Colorado. I don't know if any Summit classes are still open. But if you have a young

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person between 16 and 22, you want to send them to Summit this summer. Go to [summit.org](http://summit.org), check it out. Then May 20-21st, back to my old stomping grounds, Calvary Chapel, Old Bridge, New Jersey. All the details on the website [CrossExamined.org](http://CrossExamined.org). Check it out there.

Let's now continue our discussion of the mathematical world, and particularly the extremely narrow mathematic parameters in which this universe exists. Let me just give you one of them. And we'll have a show on fine-tuning here at some point in the future. But this is what Chuck Lorre, who is a TV producer, ironically did a TV show called "The Big Bang Theory", and many other programs. Here's what he said once at the end of his program. At the end of the credits, he kind of has this philosophical saying he puts up after every program, and you've got to DVR the thing because you can't read it in the three seconds it's up on the screen.

But I found this one thing he said at the end of one of "The Big Bang Theory" episodes. He said this. And I don't know his religious beliefs. I think he was brought up Jewish. I don't know if he's a believer or not. But here's what he says. In no particular order, I could not or would not exist without air, food, water, gravity, tides the moon, the sun, night, civilization, the laws of physics, the laws of thermodynamics, the law of the land, ancestors having sex, DNA, viruses, bacteria, plants, animals, oceans, ice caps, the kindness of strangers, the Big Bang, familial bonds, smart people, brave people, memory, medicine, the Periodic Table of Elements, tribal instincts, magnetic fields, weather, Earth's molten core, rotating earth, a tilted Earth, tectonic plates, sleep, death, eat, consciousness, evolution, teachers, and the miraculous self-regulating chemical factory that is my body. Other than that, I like to think of myself as a self-made man. Well said, Mr. Lorre.

Yes, there are so many things we're dependent on to be here. And so many of these things he mentioned are aspects of physical reality. They're part of the fine-tuning of the universe. And as I mentioned, the constants of physics, the numbers that are plugged into the equations that describe the laws of nature, the initial conditions of the universe, are fine-tuned just right. Our solar system has aspects that can only be described as fine-tuned, as designed. And let me just give you some perspective on this. It's hard to wrap your mind around these numbers. For example, one aspect of our universe that is fine-tuned, is that the strength of the gravitational force to the strong nuclear force is fine-tuned to 10 to the 40th power. If it were any different, we wouldn't exist. Now, what's one and 10 to the 40 of power?

That's one part in one with 40 zeros following it. You say, Frank, I can't get my head around that number. I know. Neither can I. So, let's use some comparisons here. First of all, when you're using this scientific notation, 10 to the 40th power, what does that mean? Okay, as I mentioned, one with 40 zeros following it. So, 10 to the 40, is 10 times bigger than 10 to the 39. Are you with me? Alright, let's think about this for a second. How many seconds have there been in a lifespan of say, 80 years? There are 2.5 times 10 to the nine seconds. So, you've got basically 2.52 billion seconds in a lifetime.

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So, 2.52 times 10 to the ninth, is the number of seconds in an 80 year lifetime, 2.52 billion seconds. So, 2.52 times 10 to the 10th seconds, would be 10 times 2.52 times 10 to the ninth seconds. In other words, you're just adding a zero. So, instead of 80 years, it would be 800 years, by just going from 10 to the ninth, to 10 to the 10th. Are you with me? Okay. How many seconds have there been since the universe began, according to the standard scientific estimates, 13.8 billion years? How many seconds is that?

That's 10 to the 17th seconds. Ten to the 17 seconds is 13.8 billion years. Okay? So, if I were to say 10 to the 18 seconds, that would be 10 times longer than 10 to the 17. That would be 10 universe histories in seconds. So, when you're talking about 10 to the 40th, it's virtually incomprehensible. Here's the illustration. The fine-tuning of the gravitational force compared to the strong nuclear force at 10 to the 40th power, would be like taking all of North America, from Panama to Greenland, and stacking it in dimes all the way to the moon, 238,000 miles or so. And then doing that on a billion other North American continents, stacking them all in dimes all the way to the moon, 238,000 miles.

And then taking all those billion or so piles, putting them in one big pile, marking one dime red, mixing it into that incomprehensible pile, taking a friend, blindfolding him, throwing him in the pile, and asking him to pick that one red dime. The chance that he would pick that one red dime, is one chance in 10 to the 40th power. Is he going to pick that dime? No. That's how fine-tuned just one of the constants of nature is. And if that constant was different, by an infinitesimal amount, one in 10 to the 40th power, we wouldn't exist. And that's just as I say, one of at least a dozen of these. You change any one of them, we don't exist. For example, the cosmological constant is fine-tuned to 10 to the 120th power.

For comparison, there are only (and I say only, this is just for comparison), there are only 10 to the 80 atoms in the entire universe. And this is fine-tuned to one in the 10 to the 120th power, the cosmological constant. The thing that's keeping the universe accelerating at the rate it is. And we're not even sure what this thing is. Dark energy, dark matter. This is beyond comprehension. Why are things like this? And why can we describe the universe in the language of math? Look, there's only three possibilities for the values of our universe being what they are.

Physical necessity, they had to be there. Virtually nobody says that's true. They don't have to be where they are. They could have been a number of other places. We just wouldn't have a universe, or we wouldn't have a universe that could support life. Chance. It just happened to fall in these parameters without intelligence. I don't have enough faith to believe that. And by the way, chance is not a cause. Chance doesn't cause things. Who caused this? Chance, he was just here. No, chance is not a cause. Chance is a word we use to describe mathematical possibilities. Chance doesn't do a thing.

The third option is that it was designed. Somebody designed the cosmological constant, or the gravitational force to be right where it is. That makes the best sense. Now, we're going to have

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to finish this in the midweek podcast. We don't have time to do it now. But we'll talk more about the mathematical world, and we're going to get into the moral world, and the metaphysical world, including miracles. Because whatever can describe this universe, whatever worldview is correct, it has to be able to explain at least these five M's. It's got to be able to describe the material, the mental, the mathematical, the moral, and the metaphysical world. We'll do it next time. I'm Frank Turek. See you right here. God bless.

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