Is There a Mind Behind the Math Behind the Material World? https://mindmatters.ai/podcast/ep340

Announcer:

Greetings, and welcome to Mind Matters News. What does it mean for something to exist? If you're a dualist, you likely acknowledge that two kinds of things exist, physical stuff made of matter, and conceptual stuff like mental states and ideas. The number three, for instance, if you're a physicalist and believe only physical things can exist, then you may claim that all that mental stuff essentially boils down to physical stuff in the end. However, there's also a third camp that swings the other way. For idealists, everything boils down to ideas and concepts, even the physical stuff. Today, we're joined by Doug Axe to talk about idealism and what it means for understanding the world around us. Enjoy.

Robert J. Marks:

Greetings, and welcome to Mind Matters News. I'm your idealistic co-host, Robert J. Marks. I'm joined today by co-host bagpipe playing Brian R. Krouse, who along with Angus Menuge and me recently published the book Minding the Brain. And yes, Brian Krouse plays the bagpipes.

Brian Krouse:

It's true.

Robert J. Marks:

It has nothing to do with today's podcast, but it's an interesting fact. Brian, it's great to be your teammate.

Brian Krouse:

I'm glad to be joining you here, Bob.

Robert J. Marks:

Okay, good. You're a lot smarter than me on today's topic, so I appreciate you co-hosting. The book Minding the Brain contains a number of fascinating chapters addressing the question of whether our minds are more than our brains. Modern evidence and arguments suggest that we are more than computers made out of meat. Our brains don't define us. One of the outstanding chapters in the book is by Doug Axe, that deals with so-called idealism. In a nutshell, Dr. Axe summarizes idealism as the belief that, "Reality exists exclusively of minds and their ideas."

We're fortunate to have Dr. Axe as our guest today on Mind Matters News. Here's a little bit of background about Doug that will impress you. He is the Rose Endowed Chair of Molecular Biology and co-director of the Stuart Science Honors Program at Biola University. He is the founding director of Biologic Institute. He's the founding editor of Biocomplexity and the author of Undeniable: How Biology Confirms Our Intention That Life is Designed. And I have read the book... Well, I didn't read it. I listened to it, and I recommend it highly, and I'm sure it reads as good as it listens to it. It's an excellent book. After completing his PhD at Caltech, Professor Axe held postdoctoral and research scientist position at the University of Cambridge. Doug, welcome to Mind Matters News podcast.

Douglas Axe:

It's great to be here. I don't play the bagpipes and I haven't heard Brian. I'd love to hear that at some point.

Brian Krouse:

Yes. Maybe.

Douglas Axe:

A little bit of harmonica, maybe.

Robert J. Marks:

Okay. Brian, tell you what, since you are a lot more knowledgeable on this topic than I am, so I'm going to hand the steering boat to you for while.

Brian Krouse:

Okay.

Robert J. Marks:

So you go ahead and begin the inquisition of Dr. Axe.

Brian Krouse:

Okay. All right. Let's do this. Okay. So Doug, we are here today to talk to you about your chapter in our book, Minding the Brain. The title of your chapter is of Thinkers, Thoughts and Things: A Common Sense Defense of Idealism. And this chapter, it fits in the overall structure of the book. The second unit of our book, our book's an anthology with overall 25 chapters. And yours is in the section where we talk about a number of different philosophical approaches to philosophy of mind, including dualism, a couple types of dualism, and then idealism. And this philosophy idealism might be one that's least familiar to people. So why don't we just start out with a big general description of what is idealism.

Douglas Axe:

Sure. And it has as any philosophical idea, there are nuance to variance, but I'm just focusing on what I'm calling a commonsensical version of idealism. I didn't write my chapter to convince professional philosophers so much as to convince hopefully thoughtful people who are really interested in the matter.

Robert J. Marks:

And if I could interject, Doug, that's the reason your chapter reads so well. It's written to the educated reader, I think. Anyway, it's very well written.

Douglas Axe:

That's what I'm aiming for, hopefully. So in a nutshell, idealism... Well, let me go back to these three categories, thinkers, thoughts and things, and I throw that out there. I think it's a good way to get your head around this. If you ask people what are the buckets into which absolutely everything that's real fits, a reasonable crack at answering that might be, well, there's these three buckets. There's thinkers, there's thoughts, and there's things, and they seem to be distinct because thoughts don't think, thinkers think thoughts and things are the hard material things that are outside of us. So us human thinkers, we

think of ourselves as being a thinker on the inside, looking at the outside world. And the outside world consists of things and of course other people. So there's a thinker that's a part of every human body that I see every living human body.

So those seem like a reasonable three-bucket, comprehensive view of what's real. But there's problems, if you run with that three-bucket view and there's different philosophical views about, well, if it's not those three than what is it? And we'll probably talk a little bit about materialism or physicalism, which is the idea that really there's only one bucket, and that's things. And thinkers are just an example of things, evolved things that have evolved, complex behavior, and maybe consciousness and thinkers doing their thoughts are just really things doing computation or brain doing computation. That's one view.

Idealism is about as diametrically opposed to that as can be because idealism says really there's two buckets, and it's thinkers and their thoughts. And that the things that we're thinking of as things, cars and buildings and planets and stars, those are actually thoughts more specifically, those are divine thoughts. So the thoughts of God when he created, he's really thinking things into existence. So idealism is this idea. It is really opposite of materialism, physicalism in that instead of rejecting or subsuming thinkers and thoughts within things, it subsumes things within thoughts. So everything that exists by this view, and it's a view that I hold. I'm not just academically talking about this. Everything consists of thinkers and their thoughts basically.

Brian Krouse:

Okay. That's helpful. And as I understand it, that there are historically different philosophers with slightly different flavors of idealism, but the variety that you are most interested in, is one proposed by Barclay, as I understand, is that right?

Douglas Axe:

Well, Barclay is the main person you think of Bishop Barclay. So he's writing in the early 1700s. He's probably the most famous proponent of this. More recent Jonathan Edwards is another proponent of a version of idealism, but they're slightly different flavors. There's epistemological or phenomenological version of idealism, which is basically saying it is not so concerned about what is fundamentally real as it is about how do we know about anything being real. So that's what epistemology is. It's the philosophy of knowing how we go about knowing things.

And I think you can very, very quickly show people that, although we all think that cars and well, most of us think that cars and trees and plants and stars are real, we only come to know that through conscious experience and we're not directly experiencing these physical things. What we're directly experiencing is the conscious experience itself. So if you want to be a skeptical epistemologist, you might say, let's start with what we know is true. And that's the thing that we most directly perceive. And those would be the objects of conscious perception, and then we can work out what the other things are or whether they're real or not. But we start with what we think is most basic and most securely known. And that would be the objects of conscious perception.

That becomes a very philosophical project to argue about what we know and how we know it, or it can be. A more commonsensical approach, I think, is to say, okay, let's not worry about whether we can prove things. Let's ask ourselves what is likely to be the most correct picture of reality. And we're not going to worry about whether we can produce formal proofs to show philosophers, yes, this is the correct view of reality. We're more interested in satisfying our own curiosity about what kind of a world is this that we live in. So we're going to be willing to accept things just because they make a whole lot of sense and their opposite doesn't make a whole lot of sense. So that's the commonsensical nature of this, and that's where I land. I think it's real. I think that the best picture of reality is the idealistic picture. And I'm not so much interested in convincing philosophers as I am in hopefully convincing people who just want to think about it. That this is a clear way to think about things and it's probably correct.

Brian Krouse:

Yeah. That's really interesting. Now, I know people hearing this for the first time will be trying to compare it to other ideas they've encountered. And they may have taken a philosophy one-on-one class where this idea of the most direct knowledge we have comes through our sense experience. And then sometimes there's introduced connected to that, this idea that, well, we could simply be brains in a vat and being fooled about the exterior world. Is idealism trying to make a claim like that the exterior world is not necessarily real in some sense? Or we could be being deceived or is it different?

Douglas Axe:

No. And I think this is, if we go back to Barclay, he got a lot of pushback from his contemporaries because there is... When I first encountered idealism, there is a weirdness about it because it sounds like you're saying, "Hang on, you're telling me that rocks and aren't real," and that's not at all what I'm saying. What I'm saying is if we get to the bottom of what is the nature of reality and what is the nature of the reality of a mountain, it turns out that I think the best way to understand it is a mountain is a mountain. It is what it is. And the physics of all the material in the mountain is what it is precisely because God thought this beautiful, massive, complex, intricate structure into being. And every moment that I look at the mountain or climb on the mountain, it is what it is precisely because God is upholding created thing. And it's created in his thoughts, and it becomes actual only because he's upholding these thoughts and feeding the implications of those thoughts into other thinkers like me.

So when I am trying to climb the mountain and I slip and fall and I injure my knee, the pain I feel, the effect it has on my knee, the blood coming out of my knee, those are all consistent with this intricate and extensive, massive mathematical structure that is the universe. And in certain places, that impinges upon my conscious experience. I feel the pain on my knee. I see the blood. I have to do something about this now. Those are all implications of math being worked out, and God is the one who's working it out. So it's intrinsically, you can't, in any coherent way, be an idealist and be an atheist. Atheists will hate this because-

Robert J. Marks:

That's really clearing things up for me a little bit. Again, as the one that's coming from the outside on this, because the first time you hear about realism, you think of the matrix and-

Douglas Axe:

Idealism.

Robert J. Marks:

Yeah, idealism, and you think of the matrix. And I was wondering, and I was going to ask you, but I think you've answered it. You have in your mind your thoughts and such. And in that thought world, I exist. And in my thought world, you exist. And I just wondered how that was coordinated. And I think you're saying that this is coordinated through God's creation. That's the thing that ties us together.

Douglas Axe:

Yes, exactly. So it's not totally unlike the matrix, but in the matrix, in the film, you have humans having come up with a technology where they have... I saw it a long time ago. You have whole humans. They didn't have brains in the vats. They had people, and then they have all these electronic stuff that's hooked up to their brains. But the people are in this weird state where their body's being preserved and the big computer becomes an artificial reality and all of their experiences being mediated through some big computer. The idealistic view would be that reality, first of all, it's not malevolent. It's not someone trying to do something that tricks us. It's that God's intention in creating was his glory. But the biggest most important part of that is creating beings in his image, and that's us. And the physical structure of the universe is really a way for us to live and move and have our being. It's the way that we experience things. That we're meant to interact with each other. That were meant to do the things that we do.

Brian Krouse:

Yeah. It occurs to me that another difference with the matrix view is in the matrix you have these humans that are sitting in big test tube devices that they're being mined for energy or something like this, I think is the motivation that's feeding the evil machines. But then the evil machines are feeding an illusory view through the human's brains. So they think they're living in an alternate world. So if you are in that alternate world and you penetrate that veil, somehow, you still have a physicalist view of the universe at that point is what's implicit. And idealism doesn't have that. You're saying no. The metaphysical stuff that the world is built out of, it's the thinkers and the thoughts. That's what it is.

Douglas Axe:

When you push material things down to their very most fundamental level, you're left with the thoughts of God. So it ceases to be materialism. The material world ceases to be its own ontological category. It's subsumed within the thought category.

Brian Krouse:

It might be interesting to try to come at this from thinking through the problems with physicalism, which I know you go into in your chapter, but that helps contrast idealism as well. And maybe we could go through dualism as well. So we could start with physicalism. You could give us a little bit of a sense about the problems with our conception of there being in this external physical world as a separate thing. Even in a Christian's view, there's this idea of a separate or a theist's view. There's this idea of a separate physical world existing. You could walk us through some of the problems with that.

Douglas Axe:

Sure. So shall we start with just physicalism?

Brian Krouse:

Yeah. Let's do that.

Douglas Axe:

So to be clear what we're talking about, so a physicalist, it could be called materialism or physicalism. It's often closely associated with scientism because there's philosophical reasons why certain scientists like to think of the world as being this way. But the idea, the worldview is basically that there isn't anything other than the stuff of physics, would be a simple way to say it. So all the things that a physicist is seeking to describe with the equations of physics down to the Schrodinger equation, down to subatomic and the very large, all of these things are... The physicist is aiming at a comprehensive description of all

that is real. There isn't anything outside of that description, and this is conceding that we don't have it yet.

So a physicist would say, we don't have the theory of everything, but when physicists talk about a theory of everything as being the holy grail of physics, they really mean everything. That absolutely everything that's real would be subsumed within this physical account of reality. And where this breaks down is, there's several ways to show this, but one way to show it is to show that the physicalist view of what I'm doing, or what you're doing when you think is not compatible with your own view of what you're doing, what you think.

In my book, Undeniable, I have this exercise, and I go through this with students in the courses that I teach as well, to imagine that you are in a futuristic brain imaging lab, and the scientists in this lab, they're all physicalists. They think that there's nothing to a human other than the physical body. So they think that your brain is what's doing your thinking, and they have ways to image absolutely everything that's happening in your brain down to the, we'll say, down to the atomic resolution in real time. And you're conscious and they're querying you in this lab. And they can bring up on displays, we'll say around the laboratory that you can see, they can bring up images of every neuron in your head, every synapse, every molecular event that happens in your brain as you're conversing with them.

And the scientists, one of the scientists asks you to count to 10 and to meditate on numbers as you're counting. So you start counting one, two, and they stop you when you say two, and they show up on the displays some images of, we'll say your frontal lobe, and it's colored by activation. There's more blood flow, there's temperature difference here in the frontal lobe. These neurons have been activated when you're saying two. And they say, "Is this what you mean? We captured this image as you were saying two, T-W-O, is this what you mean when you say two?" And of course you laugh and saying, "No. I'm not denying that that was happening in my brain, but that's not what I mean when I say two."

And they get a little bit flustered and they start drilling in further and further to individual synapses, "This was firing when you said two. Is this what you mean when you say two?" And of course, there isn't anything that they can project up there. There isn't any structural thing in your brain, any material thing that they can image and put up on the display for which you would say, "Yes, that's what I mean when I say the word two, T-W-O, because what I mean is something conceptual. It's not material. It's not in my brain. I mean a number between one and three." And in the book, when you say this to the scientists, they get all flustered and they insist that you must be mistaken because there isn't anything outside the material realm. That's the only realm that exists, and that therefore you're deeply confused.

So you've got two-way... It seems to me, that if you're in that position, the best response would be, "Well, if I go in the direction of saying that, okay, maybe you're right. I'm deeply confused, then what does that imply about everything that I believe, if I'm deeply confused? If I'm so deeply confused that I'm wrong about the meaning of every word that I'm using, then I'm comprehensively confused. And that means I should reject everything because all I have is this conscious experience, and you're telling me I'm deeply confused about the meaning of it. That means brains don't exist. The universe doesn't exist. You don't exist. I don't exist. Everything goes up in a plume of smoke at that point." I call this a self Defeating argument. So the claim that physical brain is doing, our thinking is self-defeating in this sense, in the sense that it so radically contradicts your self-understanding of what you're doing when you're thinking. That you would either have to reject the materialist view or acknowledge that you're insane. And once you do that, everything is gone, including the premises that led to the materialist view itself.

Brian Krouse:

That makes sense. It'd be quite confusing to think about how you would add two plus two if what you meant was those-

Douglas Axe:

Yeah. There is no conception. I've argued this with lots of people, and usually the first path to try to rescue materialism is a representational thing where they say, well... I mean computers do math and computers are physical. And the answer to that is that representation only works if the thing being represented, the non-physical thing being represented is real. So we can't make math disappear by saying that, "Yes, I can take a pen and make a mark on paper that will be recognized as the numeral two, which represents the number two, and I can do math on paper that way." But the moment you say that, "The reality is limited to the ink on the paper," now you've lost the conceptual realm and you're back to the problem of contradicting my own conscious experience and negating my sanity, and therefore everything evaporates.

So yes, it's true that we use physical things to represent non-physical things, and language is one of those. Right now I'm speaking, and it's causing little pressure fluctuations in the air. Microphone is picking that up. All kinds of electronics are happening. That's all physical. But when you're hearing me, at some point after your brain has processed, the auditory center has done some processing, at some point that is being fed to an immaterial mind, a thinker as we're calling it, which is you. And you have to be understanding, reconstructing what I'm saying, in terms of concepts that are not physical. And if you try to force that whole thing to be physical, it all evaporates and becomes nonsense.

Robert J. Marks:

Interesting.

Brian Krouse:

Yeah. That's really interesting. So is this the same or maybe a slightly different take on this where there's a tension between the way in which humans can reason from premises as part of arguments to valid conclusions, and this, like an attempt at a physicalist basis for those kinds of operations. Whereas if you're talking about just the physical behavior of our brains and the neurons in our brains, you're talking about what sorts of physical laws or biochemical laws are controlling that behavior. That seems quite different than having the conceptual reasoning guide you're thinking. Is that a similar tension, or is that basically reduced to the same thing you're talking about?

Douglas Axe:

Well, yeah. So a physicalist will have to take this view that your thinking is a brain function and your brain is doing your thinking because a physicalist is not going to acknowledge the existence of a category outside of the physical, which I'm saying your worldview is incoherent if you don't acknowledge this. That our mind has to be immaterial, and our thoughts have to be immaterial, because if you force them to be material, the whole thing goes up in smoke. And it starts with, "Okay. I'm crazy because the account that you're giving of me contradicts my own internal first person perspective of what I'm doing so radically that I would have to throw up my hands and say, I don't know what I'm doing. I'm totally insane. None of this makes any sense." But then all the things that the materialist assumes, that the physicalist assumes go up and smoke with it. So the whole thing goes up in smoke.

Brian Krouse:

Yeah, makes sense. Very interesting. Okay. So this is some of the problems with physicalism. How about dualism? How does that fit in?

Douglas Axe:

Okay. So this, most people when you talk about substance dualism are going back to René Descartes and is sometimes called the Cartesian Theater. So he views a human as being a physical body and then an immaterial mind, soul, spirit, that it's like sitting in this theater, the mind, soul, spirit is sitting in this theater. And on the stage is all the immediate sense perceptions that are presented to this thinker that have come through the body, come through the eyes, through the ears, through the sense of touch, all these things, and they're processed by the physical brain.

And then at some point, something appears up there on the stage and it's presented to this immaterial mind, soul spirit that is the conscious you inside of your body. And I think that's a very much more correct way to view things than the physicalist way of view things. Because here in Cartesian dualism, you're saying, no, your immaterial self is real. And those thoughts that you're thinking are not material and your consciousness can't be explained as a physical phenomenon.

But where dualism runs into trouble, I think, is it's called substance dualism, because as a philosopher or as a philosophy, it's really saying there are two distinct ontological categories. So ontology is the study of being in its most fundamental sense. What are the things that are, what kinds of things exist? And the substance dualist is saying, well, physical things exist and they have their own category of existence. And then non-physical, things like fingers and thoughts exist. So the problem is that a dualist will say, yes, there are these three buckets, and they're all distinct and thinkers, and their thoughts are in this realm of the non-physical, and things are in the realm of the physical. But when you go that way, somehow we have to connect our mental conscious, non-physical experience with our physical body. So something has to bridge a gap here because I am standing in a desk here. I can feel the desk with my hands. I think the desk is physical. But how on earth would a physical signal from my sensory perception, the feel of the surface of my desk with my hand, how would that get to the immaterial self that's supposedly in this Cartesian theater? Something has to mediate a bridge between atoms basically, physical stuff, and a being that's not at all physical, a mind, soul, spirit, that's not at all composed of atoms. And atoms can't do that. Right? Because how can atoms reach into this thing that's not physical? And conversely, if my mind, soul, spirit is not at all physical, how would it grab atoms in my brain? So you have this bridge, you have this gulf really, once you go the direction of two ontologically distinct categories. And you have the problem of how would you bridge this gulf?

Now, one way to do that would be to say, "Well, God bridges the gulf." And in a sense, I think that's correct, but then you still have a problem with God because God is described as a spirit, being God the Father we're talking about here. And really, God, the Trinitarian view of God is in eternity past is there's not physical substance to God until the incarnation. And that's the point where God, the Son, takes on flesh and has a physical body.

So we have to, if we go back to the Cartesian theater, you have to somehow explain how would an immaterial God bridge this gulf between the atoms, the hard stuff, and the mind, soul, spirit human being that's sitting there in the theater waiting for there to be an immaterial conscious experience presented to him or her. And it runs into the same problems. If God is not at all physical, then how does God interact with the physical?

It's not nearly as problematic, this view, as the physicalist view, but I think that these problems about how could it be a category of existence where God doesn't exist? And that would be the physical category. And how would he move in that realm if he doesn't exist in that realm? And those problems go away if you say, "Well, wait a minute, maybe this hard stuff, the atoms that we're talking about, they aren't fundamentally distinct from God's thoughts. Maybe they are God's thoughts. And maybe physics looks so much like math because it is math, because God has come up with this mathematical structure. So the idealistic take on this, I think, solves some very deep and thorny problems at the boundary between the physical and the non-physical, even for the substance dualist.

PART 1 OF 4 ENDS [00:28:04]

Robert J. Marks:

The question I wanted to start out with, Doug, is the question about animals. We can see, for example, that we, as creations of God, have this idea of reality infused in our heads in some fashion. But what about animals? There's no heaven for dogs, I don't think. Or at least it's not addressed anywhere that I know of in scripture. But what about that? How does the idealism fit in the world of animals?

Douglas Axe:

Yeah, it's a great question. So I think it boils down to we, well, actually, I only know that I'm conscious. I don't know that you are for sure, Bob, but I assume that you are.

Robert J. Marks:

Oh, take my word. I'm conscious.

Douglas Axe:

All right, now I know. Okay, now that you've told me, now I know. So we all have this, this is epistemology, like how do we know what we know? And we're all starting from the inside of us. Right? So you have this experience, you're building a picture of reality, and very early on in your infancy, mom and dad are people. You're a person. And you just come to grow into the world knowing that other human beings who look like you have this same first-person conscious experience, the same kind of thing that you're having. And then we're talking about idealism as a worldview that kind of makes sense of this, that says that really the things that exist fit into two buckets. It's not the three buckets of thinkers, thoughts, and things. It is just thinkers in their thoughts that exist. And the things that we call things, the physical things of the universe are really the thoughts of God being played out carefully, accurately in order for thinkers like us to live and move and have our being.

But there's animals too. And so, I think, well, if we go back to my first point about you only know by firsthand experience, your own conscious experience. So I can't even know by any firsthand experience another human's conscious experience. But I infer and I think it's very justifiable inference that because other people are acting as though they're having an experience like mine, I assume that they do have an internal first person experience. Well, you can apply that same logic, I think, to animals and infer that animals are having a conscious experience. And I think here that philosophers of consciousness, probably because they recognize it's a very problematic area if you're a materialist to explain consciousness at all. And so, some of these philosophers will say, "Well, it doesn't exist." Or some will say it's an epiphenomenon that comes out of neural activity in the brain. So it has no causal power, but they'll acknowledge that it exists.

What I would want to say is not only does it have to exist, but it has to be of paramount importance. So everything becomes incoherent as we talked about in the last episode. Everything becomes incoherent if we don't take seriously the non-material realm, that our minds are not material and that our thoughts are not material. Now, when I look at a dog and I have a dog and I love dogs or really I would say animals all the way down to insects, they behave as though they are having an experience. So an insect behaves as though it's capable of feeling pain and moving away from harmful things. And it reacts in a way that as a human you can relate to. And a dog certainly much more than an insect, reacts to pain and pleasure in a way that humans relate to.

We have a natural way of imposing or interpreting what you see in the behavior of an animal as conscious experience the same way that we do with humans. So I would say that the safe position would

be that anything, any entity out there that behaves as though it's conscious, and plausibly could be conscious. I would say that it is conscious or I would treat it as though it is conscious because you get into moral dilemmas here. How are we supposed to treat animals? And if animals are not conscious, then they're not capable of experiencing pain. And I think that my iPhone is not conscious and therefore is not capable of experiencing pain. So it would be a waste if I took a sledgehammer to my iPhone, but it wouldn't be morally wrong in the way it would be if I mistreated and caused pain for no good reason to an animal because the animal is, I think, capable of experiencing pain and therefore I should treat it differently.

And I think there's a scriptural basis for this as well. So I would say in short, an immaterial self exists within animals all the way down to any animal that you see behaving in a way that it acts as though it's conscious. And I can't prove it, but that's the way I would interpret this. Is that helpful?

Robert J. Marks:

Yeah, it is. Let me push back on that a little bit. I can program robots to run around the room and when it gets low on energy gets hungry, if you will. It plugs itself in the wall. They've had this sort of thing for decades. And then you can also program them with little sensors to stay away from other robots that might hurt them. But I don't think the robots exhibiting this behavior really display consciousness at all. I think that what they're responding to is just an algorithmic, if you will, response.

Douglas Axe:

Yes, and that's why I meant to nuance that there. If we know the backstory of something, I would agree with you. A computer is not conscious. It is just a material thing. There isn't really a self in a computer or in a robot. So yes, you could program your computer to whenever you hit the P key on your key on your keyboard, it says, "Ouch. Don't do that ever again. It causes me extreme pain when you hit the P key." But there's nothing behind that other than my idea of doing it and then implementing it in the material realm. So I would agree with you totally. There isn't consciousness attached to these things that we make because how would we make something that's conscious?

But we didn't make crickets and spiders. And as a theist, I say God made crickets and spiders. So there the behavior that seems to, it's consonant with human experience, when something that God did make has behavior that resembles conscious reaction to things. A safe bet is, yeah, it probably is. It probably is conscious. It probably is experiencing things. So it's behaving as though it's experiencing things because it is, whereas the backstory on the robot, we know it's not. We're just faking it.

Robert J. Marks:

Okay, so it's certainly evidence but not proof I guess would be the bottom line.

Douglas Axe:

Yes. Right.

Robert J. Marks:

Okay, excellent. That sounds like an application of the common sense kind of reasoning that you're advocating for. Let me ask you, this is a total turnabout, and that is there any relationship between idealism, the fact that the reality comes from our thoughts and those thoughts come from God, if you will, between that and say the Eastern religions, which says that you're going to become one with the universe. Aren't we in some sense becoming one with God, in some sense? I'm not familiar with the

eastern religions, but it seems to me that they believe in something like that, but there's probably a difference. Any comments or thoughts on that?

Douglas Axe:

Yeah, I'm not an expert on that either. But the idealistic position, as I am articulating it, no less sees each human being as a distinct individual than the dualistic position. So God is a thinker, and I am a thinker, but I am a distinct thinker from God. I'm not a part of God. So the things that I'm thinking are my own thoughts. I'm not a part God, I'm not an extension of God. I'm something that God created. And so, in that respect, the dualist position wouldn't be any different from the idealist position. Is that helpful?

Robert J. Marks:

Yeah, that is. Okay, great. Appreciate it. Brian, you had some thoughts about some of the points raised in Doug's chapter?

Brian Krouse:

Yeah, yeah, no, there's a section in the chapter that I'd love to hear you talk about where you get into some more complex physics, at least from a high-level perspective. You start talking about these subjects like quantum mechanics and implications for this topic. And that, to me, is fascinating. Because on the one hand, idealism seems to be kind of backing away from all the thought that goes into the thinking about the physical world. But in fact, part of the motivation in your chapter for turning to idealism comes directly out of the deepest and most modern conceptions of physics itself. So could you get into that?

Douglas Axe:

Yeah. So if you go back to classical Newtonian physics, I think that was the era where there's this sort of sense of what the physical world is that we grow up into without doing any academic study of physics. And that is the world of the hard objects. So I talk about these hard spheres. It's the world of the material stuff that we can detect with our senses. It's objective because you and I can describe things and I can describe something that you've never seen. And then when you see it, you go, "Oh, that's exactly what this person described." So it's objective. It's really out there, it's real. So idealism is firmly a realistic worldview.

But when you start to study this more and more deeply, so we go past Newtonian classical physics. Newton was describing the movement of the celestial spheres, gravity forces and energy, kinetic energy, how these things relate, billiard balls, how they behave when you're playing pool. And all of this resonates really well with our own commonsensical view of how physical things behave. It all gets much more weird though in the post-Newtonian era, and it got really weird in the early 20th century with quantum mechanics looking at things that are smaller and smaller and smaller, and you find out that it's not at all like billiard balls.

You still see, remember from the 1950s, 1960s diagrams of the atom and it was always a circle or a set of circles. In the middle, the nucleus. And then these little spiral graph like lines with a little dot there that's showing electrons orbiting a nucleus the way earth orbits the sun. It turns out when you look at things on that small scale, the atomic scale, the subatomic scale, it ceases to be billiard balls. It doesn't operate the way classical mechanics does. And the more we've learned about this, the more sort of strange the picture has become.

And one of the most strange things is this little electron or a strange thing that was discovered early on, this little electron that we'd like to think of as being a billiard ball that's really small and has unit

negative charge to it. It just refuses to behave like a billiard ball or a BB. It's not a little thing. It's not a little particle in its behavior. And one elegant experiment that showed this is called the famous two slit experiment where you can fire these little BBs electrons at a screen and the screen catches them, prevents them from going, or we'll call it like a baffle. And then there's a screen behind that can flash when an electron hits it. And if you put a wall, a baffle, in front of the screen where the electron would flash, if it hits, then you don't get any flashing because the electrons all get absorbed by the barrier, the wall.

But if you put a slit in this barrier and fire these electrons one at a time, you'll get sort of a cloud of flashes happening on your detection screen because they went through the slit in the barrier. And there's nothing weird about that. That's like the same thing would happen if I were firing a BB gun at a target and someone put a barrier in front of the target. No BBs would make the target if someone put a slit, then some of my BBs would make it through the slit and some wouldn't.

But it becomes much more weird when you open up a second slit in the case of electrons, because now you get a strange pattern of flashes on the screen, and the only way to explain that pattern ... You don't get what you would think you get from the BB gun experiment. You don't get just too sort of blobby areas where the electrons hit the screen. You get a wave-like pattern with raising and diminishing intensity that fans out in a very strange way that seems to have nothing to do with those two slits and BBs going through the two slits. And it turns out that the mathematical description of that pattern is a wave pattern. It's as though my electrons that I'm shooting at this barrier are actually wave-like, not particle-like. And the waves are interfering, because there's two slits.

And you can do an experiment with a water tank. People do this in physics where you can show how the waves, the ripples add and subtract, negate each other, and you get this ripple effect. Well, these electrons are behaving in a real experiment as though they're rippling like a wave, and yet they also behave like a BB because when they hit the detection screen, you either get a little flash or you don't, and the flash is in one place. So it's like a BB, but it's not like a BB. It's like a wave. And where this becomes really weird is you might think, 'Well, if I'm shooting the BBs through both slits, maybe they have some sort of weird behavior that's wave-like."

But if I shoot one BB at a time, so there's only one, sorry, one electron at a time through this barrier, I will still get that wave behavior. So one single electron is not acting like a BB in that it still one at a time conforms to this wave-like behavior on the detection screen. And yet, when it makes its flash, it is behaving like a BB because it's no longer the wave that's in this one particular point. And there's really no classical resolution of this. There are physicists, David Baum and others who tried to revive recover some notion of classical understanding of what reality is at the atomic level or subatomic level, and it has never worked.

We're left with a picture of reality that's strange in multiple respects, not just that an electron is neither a particle nor a wave, but some sort of hybrid between them. But also that there's an indeterminacy now because with the BB, if you do your calculation carefully enough, and I know the velocity of this BB and I've got a slit, I can tell you where it's going to land. We can do physics on the BB, but when you try to do physics on the electron, it ends up landing somewhere on that screen and there doesn't seem to be any way to say how it lands, where it lands. All you can do is shoot it and detect where it landed and say, yeah, that's consistent with physics. But physics no longer seems to tell us how it resolves itself into a point thing, a BB-like thing when it was behaving like a wave. So all that to say the tidy picture of physical reality that we had in the Newtonian era has just dissolved away, and the more we learn in physics, the more strange it becomes.

Robert J. Marks:

Yeah, that's incredible. I think Niels Bohr, who was a quantum mechanic pioneer, had big arguments with Einstein for example. Einstein said, "God does not play dice with the universe." Bohr says, "Einstein quit telling God what to do." That was his response. He also said something like, "Anybody who understands quantum mechanics and is not astonished by quantum mechanics doesn't understand quantum mechanics." It just has no relationship to-

Douglas Axe:

Because it's mind-bending. It's so strange and so unlike what we think of physical reality being,

Robert J. Marks:

My pastor came to me one time and we were sitting at this meal and he said, "I don't understand quantum mechanics." He was looking at a book, I forget what it was, but it was a book that talked about quantum mechanics and such things. And he says, "Explain it to me." And my explanation was, "It's like the movie The Mystery Men." Have you ever seen the movie The Mystery Men, either one of you?

Douglas Axe:

No.

Brian Krouse:

Mm-mm.

Douglas Axe:

I haven't.

Robert J. Marks:

Okay. It's a story about the superheroes with substandard superpowers. William F. Macy, for example, plays The Shoveler, and what he's really good at is hitting people with shovels. So that was his superpower. The most interesting one was Invisible Boy. Invisible Boy came along and they said, "What's your superpower?" He says, "Well, I'm invisible unless somebody looks at me." Then he's not invisible anymore. So in a way, this reminds me of quantum mechanics. You have all of this uncertainty like you were talking about, and then you look at it and all of a sudden there's a reality there. It collapses to some sort of solution. It seems to me that this ties in very, very well with the idea of idealism, that it takes the mind to interface with matter, just like Invisible boy. And it's invisible until you look at it and then boom, there it is.

Douglas Axe:

Yeah. It also, to me, speaking as a theist and a Christian, what if God in creating intended for there to be this beautiful, intricate mathematical structure that gives appropriate constraints to the experience of the created beings he's going to make, like us in particular, in which we live, move and have our being, but that to prevent people from ultimately worshiping the created universe instead of him, he makes the math so that the deeper you get into this, the more you see it saying, I'm not the base reality. So that's the one thing you get from physics if you keep studying physics is you reach a point where it says, don't look here, don't keep looking here. If you're looking for the base reality because it's not to be found, it dissolves away.

And I find that to be a really interesting, plausible account of why God would make the physical structure the way it is. He could have made something very Newtonian that is exact, but instead, he seems to have been pleased to make something that's much more mathematically elegant than Newtonian physics. But at the same time, it vanishes when you ask it the deepest question, "What is this, fundamentally?" And it goes away. It says, "It's not me. It's not the physical structure, it's not the math fundamentally." And that's because God is what is the base reality, not this physical structure.

Robert J. Marks:

Boy, wow, quantum mechanics is mind-blowing, isn't it?

Douglas Axe:

Yeah.

Robert J. Marks:

I know enough to be dangerous about it, but wow, just what I know is just astonishing. Where are we going, Brian, conundrums?

Brian Krouse:

Yeah, yeah. There's a neat section in your chapter that maybe we could walk through where, so in our episodes so far, you've helped us motivate these maybe feeling a little odd ideas of idealism at first, but connecting it to challenges with physicalism and dualism. And then, you have a section where you go through four conundrums that really do help us support the move away from physicalism and dualism towards idealism. So we can start with the first one, which you have as why does physics look so much like math?

Douglas Axe:

And this is something that has been observed by physicists for some time. Nobel laureate, Eugene Wigner, once commented on the unreasonable effectiveness of mathematics in the natural sciences. In other words, why is it that when we come up with what we think is the most accurate description of physical things, that description is invariably mathematical. And this goes for classical physics, Newtonian mechanics to quantum mechanics. All the physics really is expressed in the language of mathematics. And why would that be the case?

If we think of mathematics as being something that humans invented as some sort of a conceptual apparatus for doing things that only thinkers do, then why would a physical world conform to an exercise that thinkers do? Why would there be this connection between the hard stuff of atoms and molecules and mountains and stars and galaxies and the ethereal intellectual stuff of mathematicians? And that is a conundrum. And really, idealism is a beautiful resolution of this because in the idealistic view, physics looks so much like math, because physics is an example of math. I won't say physics is math in the sense that the word physics doesn't mean exactly what the word math means, but the physical system, the physical structure of the universe is something that has been created as a mathematical thing by the idealistic view. So it resolves that conundrum.

Robert J. Marks:

We're really numbed by familiarity, aren't we? In other words, we take it for granted that the universe is modeled through mathematics and all the physics through mathematics. There was even something

more fundamental that reminded me of how I'm numbed by familiarity, which was a guy named Richard Hamming. He worked for Bell Labs in the 1940s and '50s, I believe. He said, "It's astonishing to me that five apples, you have five apples and you have five rocks, and you have five people, and all of them are associated with the number five." He said, "To me, that's astonishing." And I tried to relate this to people, and they just don't understand. They're too numbed by familiarity, even at that incredibly basic level. So intuitively five is five is five, but the number five is an abstract thought. And the fact that we can apply it to these different things is astonishing.

Douglas Axe:

Why do these abstractions keep appearing in the hard material world out there? And that should be uncomfortable for materialists, but we become so accustomed to it that it no longer shocks us.

Robert J. Marks:

Yeah, exactly.

Brian Krouse:

Okay, so building on this, conundrum two is why does matter refuse to be material? And I think you've touched on some of this in our last episode with quantum mechanics but yeah, unpack that if you could.

PART 2 OF 4 ENDS [00:56:04]

Douglas Axe:

Yeah, we were talking about this in the prior episode. That if you're not a physicist and you don't grow up studying physics, you end up with a kind of intuitive notion of what the world is like including the material world. So rocks and billiard balls and automobiles and stars and things behave in a certain way and it's a very sort of mechanical and reproducible way that they behave. And there's nothing that is jarring to the intuition really about the way rocks behave. You come to be expecting things of mass to fall to the earth when you let go of them, and they do.

But when we study physics at a higher level and a more deep level, we look at the structure of physics as it explains, as it pertains to much smaller things than rocks. We end up with a description that we can show to be mathematically accurate, but that's weird. And we were talking about electrons in the prior episode where when you maybe first describe what an electron is to an elementary school student, it would probably be a tiny particle that has negative charge on it and it orbits around a nucleus, and an atom consists of the nucleus and the orbiting electrons. Well, that student is probably going to be picturing an electron as being kind of like planets orbiting the sun, that the sun has the role of the nucleus and the electrons are kind of like the planets because that's how you would picture that sort of thing.

It turns out when we actually look at how an electron behaves, it's nothing like a planet. It is particle-like at times, and it is wave-like at times. And it seems as though the wave description is more comprehensive until the electron has to appear somewhere and do something at which point it suddenly stops being a wave and it starts to be like a particle in that it has a location at a particular time. And how it came to have this location and not some other location is enigmatic. Physics doesn't address it. It just says these particles, subatomic particles, behave like waves until they don't. And when they don't, then they will appear somewhere and there's really nothing we can say to inform us about where they appear other than they appear in a way that's consistent with a probability distribution. So it's a very weird view of reality. So that's what I mean by we have this notion of what hard stuff should behave like, and then when you study physics, you find out, oh, it doesn't actually behave like that. And to make it more crazy, the rock that you thought behaves in a very classical way consists of atoms that have precisely this weird behavior. So the very stuff of a rock no longer is rock-like when you tease it out at its most fundamental level.

Brian Krouse:

As I understand too, this is just the beginning of the weirdness in quantum mechanics, that you also have this idea of non locality, which you touch on in Conundrum Three. Why is physics intrinsically non-local and non-reductionistic? Could you tell us about that one?

Douglas Axe:

Yeah, so I'm referring here to a physical phenomenon that's called entanglement. And really in this and Conundrum Four are dealing with entanglement. So entanglement is a situation where you can have particles that are produced by certain physical events are twinned. They are behaving like one system even though they may be moving apart from each other at a very high speed. So you can have these paired particles that are generated by an event such that they are coupled to each other. And the coupling is such that, let's suppose we have one of these events that we produce in a lab, and one of the particles is going north and the other particle is going south, and we have some sort of detection apparatus 30 meters away from where we generated on the north and 30 meters away from where we generated on the south.

It turns out that this coupling is such that if we do something to one of those paired particles, say on the north, we make a measurement on it, it will instantaneously affect the one at the south. And that may not sound so weird because we're not all used to what instantaneous effect means in physics, but if we couple this with special relativity, it starts to become very, very problematic. And we'll talk about that in terms of Conundrum Four.

But in Conundrum Three, we have this strange thing where Instantaneously across distance, and I am giving 30 meters in a large laboratory as one example, but it could be very large distances. You could have one of these a light year away from another one, and what you do to the one instantaneously affects the other. So that's the sense in which physics at its basic structure refuses to be local. Because what we think about when we have our intuitive notion, our billiard ball kind of understanding of physics, is look, if I want to get that number three ball in the pocket, then I'm going to have to take the cue ball or some other ball over to it and hit it and glance it in just the right way to put it in the pocket because the cue ball over here three feet away is not going to have any effect on that ball there. It won't have an effect until it gets there and does something.

Well, physics isn't local in that way, in its most fundamental form. And this entanglement is an extreme example of this where two things that are separated by any distance can potentially be behaving as though they're one thing, they're coupled, even though they're very, very far apart. And that's very counterintuitive.

Robert J. Marks:

So how does that relate to idealism?

Douglas Axe:

Well, our intuitive physical understanding is based upon our familiar experience. So in my experience, that pool ball or anything else, if I want to move something, I have to go over and grab it. So there has to

be physical contact or I can move leaves with my leaf blower, but it's blowing air, so there's physical contact, there's something that's being moved that goes over and touches those things and causes them to move.

When we find out that the math is not like this intuitive physics and yet it is still mathematical, we have a situation where reality fundamentally seems to be more like math than like our intuitive notions of physics. So physics becomes less like what we thought physics was classically and becomes more like concept or these ideas or these mathematical notions. Because it isn't at all strange to think of a mathematical structure where two things are coupled because distance is one aspect of a mathematical description, but the fact that I consider something to be a great distance away from another, if I'm viewing it strictly mathematically, it isn't a problem that the two are correlated. It's only a problem for our intuitive understanding of physics where two things have to be together if they're to affect each other.

Robert J. Marks:

Okay.

Brian Krouse:

That makes sense. Okay, so then you mentioned a little bit earlier that Conundrum Four is also connected to this entanglement?

Douglas Axe:

Yes, this is where it becomes bizarre, but you have to take some things at my word if you're not familiar at all with physics.

Robert J. Marks:

Okay, Conundrum Four, by the way, is how can true understanding of physics be rationally incoherent?

Douglas Axe:

If this is the true understanding of physics and it leads us to something that's rationally incoherent, then it can't be really the true understanding of physics. So let me tell you, we spoke a little bit about entanglement. This idea that you can produce from a physical event, particles that are separating from each other and flying off in different directions, we said north and south, but they're somehow united in that they're coupled, and if you touch one of them, you're touching the other one. Okay? And that's strange in itself, but this will make it more strange.

Because in Einstein's theory of special relativity, it turns out that you can't propagate effects faster than the speed of light. That's an implication of Einstein's theory of special relativity. And so if I give some examples, if we were to send a signal to Mars, and we're doing that by the way, because we control robots, NASA has robots on Mars, so they have to send signals to the robot if they want to get the robot to do something. The rover that is, robotic rover. If they want to change the direction of the rover, they need to send a signal from Earth to Mars to get it to change its direction, but it takes time for that signal to get to Mars.

And that signal can't get to Mars any faster than the speed of light. And I haven't done the calculation, someone might know, that's going to be a significant amount of time. It's going to be the delay between a signal being given at Earth and being received by the rover. And when the rover says, yes, I got the

signal, now I did this, likewise, we're going to have to wait to get that signal back where we know, okay, the signal was sent from the rover and we've now received it. So there's this substantial delay.

Now, if we conceive of, suppose someone were to say, well, I've got an invention now, I've invented a new remote control where I can push a button on my remote control here on Earth, and instantly the rover on Mars will respond, turn left, turn right, or stop. That doesn't sound conceptually impossible, but it becomes impossible in light of Einstein's theory of special relativity. And the reason it becomes impossible, or the weirdness that would result if it were possible, is by Einstein's theory, if I could press a button on Earth and instantaneously something would happen to the rover, it is just as legitimate by some ways of observing, some observers of that process would rightly conclude that the rover actually made its turn before I push the button.

In other words, the sequence of events is somewhat dependent on the observers motion. And an observer in motion, a legitimate interpretation of that event would be, no, the rover turned right, and then five seconds later you push the button to tell the rover to turn right. Well, that becomes incoherent because it messes with cause and effect, right? I pushed the button, the rover didn't make me push the button, I pushed the button to make the rover do something. That incoherence doesn't occur as long as things conform to this delay of a light signal being sent from Earth to Mars at the speed of light. If a signal is claimed to go faster than the speed of light, then you get ambiguity about the timing of events.

So if you accept that it is a outcome of Einstein's theory of special relativity, that signals cannot move faster than the speed of light, and you get an impossibility that occurs if they do, and that impossibility is that the result of the signal by some correct observations occurred before the signal was given. And that's not possible. You can't have an effect occurring before a cause.

Well, if we now go to our entangled particles, so we're not talking about controlling a rover on Mars anymore, we're talking about our two entangled particles that were produced from a physical event and they go shooting off, one going north and one going south. We just said that in current physics, and this has been validated in laboratories, what I do to the north particle instantaneously affects the south particle, which means something connected the two faster than the speed of light, that some cause and effect relationship propagated faster than the speed of light because it's instantaneous and light is not instantaneous.

But once we have that picture of what's happening in entanglement, we now have really messed with sequential causation in physics because entanglement shows now that by some reasonable and correct, physically correct, observation, but some observers watching that entanglement experiment would say no, the experimenter did his or her manipulation after the effect occurred on the south particle. The south particle effect occurred first and then the experimenter did his or her manipulation. But now you've messed with the causal structure of physics because now you're saying causes are not necessarily before their effects, that effects can precede causes. But once you open that can of worms, you've really lost everything in the reasoning that led us to where we are in physics altogether.

Robert J. Marks:

So let me try to summarize what you're saying from my mind. In relativity, there's no such thing as simultaneity, by the way I looked it up, the time it takes light to go from Earth to Mars is three minutes.

Douglas Axe:

Okay, so you got a six-minute delay if you want to send a signal and get something back.

Robert J. Marks:

Yes, Jupiter is better. It takes 33 minutes.

Douglas Axe:

Or worse.

Robert J. Marks:

And Saturn it takes over an hour, which is really incredible. But according to relativity, there's no simultaneity. You can't talk about the simultaneity of an event on Earth and on Mars. But with quantum mechanics, you can talk about simultaneity and that simultaneity is not localized and that these events can occur, separated each other even by light years. I mean, that's astonishing.

Douglas Axe:

Yeah. So I mean, to be clear, we can talk about simultaneity, but it's going to be observer dependent. So I could say you and I both took a selfie at exactly the same time, you were on Mars and I was on Earth. But when we say that, we would be saying it relative to a certain reference frame. And there would be other reference frames in which someone would say, no, actually Bob did his selfie a minute and a half before you did yours, or vice versa. So I'm not aware of anyone, there may be people who are seeing this as a philosophical, rational conundrum.

I haven't come across it, but in my mind there is a huge conundrum here because in quantum mechanics, there is simultaneity at any distance, and simultaneity at any distance invites an overturning of the notion that cause precedes effect because with these entangled pairs, there's no doubt that the experimenter can do something at the north end that affects the particle on the south end. So there's cause and effect, and if you have instantaneous cause and effect, you've now inverted, you've now really messed with our whole notion of what it means for a cause to be cause and an effect to be effect because by some observers, the effect happened before the cause, and that's utter nonsense.

Robert J. Marks:

That's really astonishing stuff. The rub, of course, is that you can't use this quantum effect. These actions happening here and on Mars, you can't use it for communication because you can't control which way your particle or which your state is going to collapse. And because you have no control over that, you can't use it for communication.

Douglas Axe:

So that's a practical thing, but I'm talking about something philosophical.

Robert J. Marks:

Sure. I'm an engineer, Doug. So.

Douglas Axe:

What I'm talking about philosophical is what we already know about physics seems to lead to a rational impossibility, and that is causes must precede their effects. And in entanglement, we have demonstrated a case where it seems that the effect can precede the cause. So where do I want to go with this in terms of idealism? Where I'd like to go with this is, this is yet another example, kind of like the two slit experiment, kind of like the electron refusing to be either a particle or a wave in any consistent way. It's yet another example where the physical structure of the universe is screaming, I'm

not the base reality. It's not saying that causes don't precede effects, they do, it's saying physics isn't the base reality. That's what it's saying. In other words, you can push physics to its very limits and you get all kinds of information coming back at you saying this is not meant to be the base reality. This is meant to be a coherent mathematical structure for the purpose of living beings to live out their lives.

Brian Krouse:

That's very interesting. It is not really until the modern physics era that you could walk around with that classical picture in your mind, and that might've not been conflicting with any facts, but now the science is in, that picture is incorrect, and sort of that underlying physical Lego block picture sort of melts away. And so maybe let's take it from here to, could you try to unpack a little bit more about what this idealist picture looks like instead? So how do things work? I walk around, there's something that my brain is and my thoughts are, and how do those connect, and the world around me. We talked about, we're not saying that the external world is illusory, there's a realness about it. So how does all that work? Maybe could you take us through the steps of if I have a thought to move, how does that turn into movement in the world and how can I affect the world? And then vice versa.

Douglas Axe:

Let's maybe take a simple example. You and I are playing catch with a baseball, okay. And you're going to throw the ball to me and I'm going to catch it. And you might throw, maybe you have a good pitching arm and you're going to throw a particular kind of curveball or something and try to make it so I can't catch it, but you've conceived of something in your mind. Here's what I'm going to do. And that's in the immaterial realm. And then that moves to the point where, okay, I'm actually going to put this into action. And then you have this sort of motive thought that is the sort of thought we have when we're moving our muscles to do something and you're initiating a throw. That's entirely mental.

But what's happening is God who knows our thoughts before we think them is right there watching. He's right there perceiving what you're thinking. And when you move to the point where you're giving a motive intent, I'm now intending to start my muscles into motion. He translates what is an immaterial intent on your part and affects certain neurons and exactly how this happens, we don't know, but he knows your brain inside and out and he knows your thoughts inside and out. So he's affecting certain neurons, presumably in a motor center in your brain, and giving them impulses that then get processed through this marvelous circuitry of the brain and become signals that go down through your spinal column to the muscles that need to be activated in order for you to execute this throw.

But all of this physics, the brain physics, the spinal cord, the ball, the air that it's moving through, is really an elaborate, elegant mathematical structure that God is upholding and faithfully upholding. And wherever there's a human, there's this little interface between the math of physics and the immaterial mind. That's you, Brian, throwing the ball to me. You're a mind. God knows everything about your mind. And when you move in this intentional way to move your body, he pushes that into the math and then works out the math. It goes through your brain, through your spinal column, your arm goes into motion, the ball goes into motion, the air is moving around the ball. If it's a curveball, you've put a spin on the ball in a certain way. All of that physics is math.

While the ball is in the air between us, light is reflecting off the ball and impinging on my retinas, and this is all physics, and it's going from my retina through the optic nerve to my visual processing center where my brain, which is physical, is processing what would be bewildering to me if it were just a bunch of rod and cone signals. But it somehow becomes, and this is God doing this, at some point what is coming through my brain, God turns into a visual experience that he hands over to me, the mind, the mental immaterial part of me.

And by the way, I'm not saying my body is not me. We are both immaterial, mindful spirit and body, mindful spirit knit to body, but the body is physical and the mindful spirit isn't. So this visual experience is occurring in me that allows me to go, oh, I better put my glove here because there's a ball coming at me at 75 miles per hour. And that is a mental decision on my part that moves through my body by God's grace and becomes motion of my hand to put my glove up to receive the ball. And then we both hear the ball hit the glove. I hear it a little bit before you do because it takes some time for the sound to go.

So the physics stuff is all math being calculated in real time by someone who does math a whole lot better than anyone else. And we are the immaterial mind, soul, spirit entities, these persons who are receiving a conscious experience that has to have been produced by God and given directly to us in order to coordinate all this. Does that make some sense of it?

Brian Krouse:

It does. It takes a second to really wrap your mind around it, but it does make sense. You have to think of through... You're replacing that physical, if you were a dualist for instance, you'd be thinking about your ideas crossing this barrier to physical stuff and then having its causal chain through the physical universe. And then maybe on your end you've got the similar thing happening from sensory information to your crossing another barrier into the immaterial mind that you have. And you sort of replace that middle stuff with this idea that's in the divine action.

Douglas Axe:

So in that sense, if I could just say sort of doctrinally or theologically, the dualist has this sort of ambiguity of, okay, if the physical world is just stuff that's there and it's not God, he made it, but the way I can make a doghouse and put it in my backyard and then I go away, the doghouse is there. It kind of is what it is independent of me once I've made it. If the physical world is what it is, independent of God once he's made it, you start to have problems about, well, what is God's relationship to this physical stuff?

And it can be problematic. It can lead to sort of a deistic view where, well, once God has put this matter in motion, he doesn't need to be here. It'll keep doing what it does, and he can go off and take a coffee break. By the idealistic view, that's just total nonsense. It is nothing other than his activity. It is nothing other than him upholding. When I say it, I'm saying the physical world and its behavior, is nothing other than God upholding this mathematical structure and calculation that he's upholding every moment or it wouldn't exist.

Brian Krouse:

Yeah. And so this idea of the world that's represented by this mathematical equation or model is within God's mind in some sense, and so it's more an integrated part of God than a physical world that has separate existence.

Douglas Axe:

Yes, it is exactly within. Now I'm not within God's mind, he has created other minds. So I am my own. He made me to be a mind, but the math is his idea that he's upholding and then the perceptions that I'm having, he's giving them to me because I don't have a way to generate those and neither do atoms and molecules.

Brian Krouse:

So that is all very interesting. Maybe one more question on that that I have. Okay, so we have some of the metaphysical pieces we have are, of course we have God in his mind and the equation that represents the world that exists in God's mind. And then separately we have our own minds and a mind per human, maybe per animal. In a dualist world, I could kind of place where those minds exist because typically your mind body unity of some sort and you have a location within physical space, but where exactly on the idealistic picture do I conceive of all these minds existing?

Douglas Axe:

Yeah, it is a good question. I think though it is a question that has a residual of physicalism in it, in that when we ask where, we're picturing three-dimensional, we're picturing tell me longitude, latitude, altitude. So we're picturing something that's part of the physical structure and trying to say where in that, what I'm claiming, what the idealist would claim, is a mathematical structure? Where in that mathematical structure is the mind of me or you or anyone else? And I think the where question is probably retaining a residual of the view that I'm saying is not the correct view, in that you're asking me for coordinates, maybe.

PART 3 OF 4 ENDS [01:24:04]

Brian Krouse:

Possibly, yeah, yeah. There seems to be some sense in which our minds are not in God, we're apart from God, and the thoughts of God are in God in some sense, and our thoughts are in our minds in some sense, but my thoughts are not in God, in that same sense.

Douglas Axe:

It might clarify things just to simply reiterate that the picture that I'm espousing, the picture that I'm trying to describe, has reality consisting of thinkers and their thoughts. We could call them minds or for humans, mind, soul, spirit. So there's a whole lot to us other than just thinking. And God is the supreme thinker. So if we say that those things exist, and that God is the only thinker who can produce, who can create minds, and this could take us off in a direction of artificial intelligence and all that, but I don't know that we have time for that. If we say that God is the only thinker who's capable of creating minds, and the human minds that he's created are capable of creating thoughts, but nothing else, there's nothing else that a human can create, and that the human minds are not God, they're not God's mind, I don't think we have to worry about giving X Y coordinates.

I think we have a system here where if we say God can create human minds, and He sees absolutely everything about them, He knows everything about what's going on in my thinking, He knows my thoughts before I think them, and He's capable of carrying out in real time this immensely complex mathematical calculation that is the physical universe, and He's capable of interacting directly with human minds to give us perceptions and to read our minds and know what needs to be pushed back into the mathematical calculation, I think the where question dissolves away, or at least I don't see something that's problematic that's left out of that.

Robert J. Marks:

Well, if I could jump in, I believe that both in terms of the theory of the Big Bang and in scripture, that before the creation of the Big Bang, there was no time. Now that's mind-blowing, imagining something without time. There is no space. And indeed, if God did create the universe, He exists outside of time

and space. That being the case also, we're limited to three spatial dimensions. There's really no reason that...

In string theory, I believe they can go up to tens, twenties, thirties dimensions. I forget the exact number, but they go up to a number of dimensions that they say exist here in our world that they're actually in strings and they're all compactified and stuff. So again, we're numbed by our familiarity, but in a different way, numbed by our familiarity with things existing in space and time. I don't think that God and His creation exists in space and time, and it's just mind-blowing to consider something outside of space and time. But indeed, if that's the case, then talking about a coordinate is without meaning.

Brian Krouse:

Right. Yeah, that's really interesting. Well, okay, so let's take a slightly different... Maybe just an application of some of these ideas. Let's go into some of that. So one direction we could think about application is, how would being an idealist and a scientist in some field, pick one, whether you're doing math, physics, computer science, neuroscience, how would the idealist perspective, do you think, impact the way you did your work? Or would it? Is it more just an interpretive thing in the background?

Douglas Axe:

So maybe we could picture a chemist or someone who's soldiering along in their career, and then they at some point become an idealist on Saturday, and when they go back into the lab on Monday, does their work look different? Is that kind of the...

Brian Krouse:

Yes. Yes. Either does their work itself look different or the way they're conceiving of their work? That would also be interesting.

Douglas Axe:

Granted, you're going to spend a lot of time scratching your head on Saturday, but if you resolve it by Sunday and you go to church-

Brian Krouse:

You probably shouldn't tell all your friends right away on Monday. But just anyway-

Douglas Axe:

Once you get over the "Wait, is this weird? I thought it was weird when I first heard about it. And the more I think about it, the less weird it becomes," has been my experience. There are a few spiritual things that I think it affects, but I don't think it would affect doing your chemistry or your physics or your biology or your astrophysics at all. A few more philosophical things that I would say is, if on Friday you thought... But here you would've been a materialist or a physicalist on Friday. If on Friday you thought that the physical universe is the base reality... And maybe you're a particle physicist and you're setting up to do some experiments with an accelerator, doing something, looking at subatomic particles.

If on Friday you thought that was the base reality, that ultimately everything boils down to strings or quarks, on Monday, once you've made this transition, you're going to scratch your head a lot and decide, "Oh, I'm not sure what I'm trying to study so hard here is the base reality. It's not that it's not real, it's that it's not the point anymore. So there could be that sort of, "Why was I doing what I was doing? And maybe I have a different view of the value of what I was doing." And I'm not saying that

there isn't value to any of these scientific disciplines, but if you're drilling in on particle physics thinking that you're finding the essence of reality, I think you're mistaken. And I think if you became an idealist, you would think likewise.

Brian Krouse:

Do you think it would change the expectations of what you might be looking for, especially at that quantum level? Well, you gave the example of, what was it? David Bohm, I think, was motivated to try to reconcile quantum mechanics with a more classical view, and-

Douglas Axe:

Yes. He tried to come up with a... Are you familiar with him, Bob? Did you ever read David Bohm?

Robert J. Marks:

No.

Douglas Axe:

He tried to come up with a deterministic replacement for quantum mechanics and it didn't succeed. But I think his motivation was, "This is so weird. I don't want physics to look like this. So help me think of a version of physics where there really are... Wave things consist of particles and there's something that explains it deterministically." So I think that if we go to this hypothetical scientist who's become over the weekend an idealist, and maybe they started off as a physicalist last week and now this week they go to work on Monday and everything looks different, it's not that they would expect to find something different in their experiments, I think; rather they would have a different interpretation of the significance of their whole field with respect to the sum total of all of reality.

Because I imagine many materialist physicists, if you're a particle physicist and you're a materialist atheist, you think you're studying the most fundamental things that exist. You think that your field is defining reality, and that everything ultimately is described by what your field describes. And if that person had this sort of transition over the weekend, on Monday, they go into work, he or she goes into work and thinks, "Oh, particle physics is not going to answer the question of what is the base reality." It's an important part of a mathematical structure that has a role in God's plan, but it's not the base reality. Really, these beings, God is the base reality and physics is the substrate, the structure within which His created beings, principally humans, interact, live and move and have their being.

Brian Krouse:

Maybe is it a little different when you talk about neuroscience? Because at this point, we're talking about the brain, and in some sense the interface between the immaterial mind and, I guess on idealism, would be the-

Douglas Axe:

Yeah, that's really interesting. Michael Egnor is a colleague who contributed to the volume. He is not a materialist. And I think, we had a meeting of the authors for the mind-brain volume, where he seems to be transitioning from being a substance dualist to at least entertaining the value of idealism.

Brian Krouse:

And in particular, he is a keen on Thomistic hylomorphism, which is a variety of substance dualism.

Douglas Axe:

Yes. But I remember in this meeting he was saying, "Oh..." He was...

Brian Krouse:

I remember that one.

Douglas Axe:

So we're going to have him out here to Biola and I'll have more conversation with him in the spring. But yes, if I were a brain person, and last week I thought that everything that a human is thinking, everything that a human is perceiving, their consciousness, all of that mental activity, is neural functions; on Monday after this transformation over the weekend, I would see the brain more as an interface or as a... It's actually not even the interface. It's like the pre-processor that does calculations, and it might do them in a neural net kind of way. I'm open to that. It's doing calculations. But the end result of those calculations is just a physical state that then God picks up and presents the corresponding mental experience to the mind. And that's a very different view of what the brain is doing. It's not less important, but it's not all-encompassing. The brain is not the person. The brain is an important organ that does this pre-processing, either of incoming signals before they're presented to the immaterial mind, or the pre-processing of motive signals coming from the mind before they become a body action.

Brian Krouse:

So I suppose as a neuroscientist under this framework, you wouldn't really expect to assume you could have a complete picture of the computational dynamics of what's going on in the brain. You wouldn't expect that to represent the whole computation or everything that goes into a thought or a decision or whatever cognitive thing we're talking about.

Douglas Axe:

But if we go back last episode to you and I playing catch with the baseball, there is, I think, a profoundly important role for the brain taking what would otherwise be a bewildering array to me. If God were feeding me, "Okay, here's what this rod and this cone are doing at this moment," I would have no way to make sense of it. So I think the brain is this remarkable organ that's taking this huge flood of data, of signals, physical signals from rods and cones for visual, and putting it through a process that resolves it into something that's ready to be reinterpreted as a visual experience and given to the human mind.

Robert J. Marks:

That strikes me kind of like swarm intelligence, where you cannot look at the behavior of an ant colony by looking at a single ant. It is a collective emergent behavior, and that's the case with rods and cones.

Douglas Axe:

And probably neurons in the brain. Not looking at any single neuron, you would have a very weak notion of what a brain is doing, but the whole thing collectively is doing something truly remarkable. But what it's not doing is thinking. It's doing this pre-processing.

Robert J. Marks:

And we have the capability, interesting, of analyzing. We have the meta ability of analyzing that processing. One of my favorite quotes by Emo Philips is that, "I used to think..." Here's his quote. "I used

to think that the brain was the most wonderful organ in my body. Then I realized who was telling me this." We are able to look at what comes from our brain, inclinations to do things and exercise, if you will, free won't or free will on that.

Brian Krouse:

Right. And there we could get into... That's tricky territory, because I would say that our mind has inclinations that are apart from anything in our brain. But it's also true that, and I think this can be shown in things like OCD, there are things where behaviors that become habitual behaviors really do induce a brain change that actually can make the situation more set in so that these habitual behaviors are being induced by a brain state that's pushing you into these behaviors. But also some of the best work on resolving and treating humans who struggle with things like this is showing that even though you are going to get this impulse that is maybe coming from a brain state that's pushing you in this direction, you can stand above it. And that's the free won't.

Robert J. Marks:

Exactly.

Douglas Axe:

You can stand above it and say, "No, I'm not going to do this." And if you do that enough, you will benefit from a retraining of the brain

Robert J. Marks:

That gets into neuroplasticity, which is something like your friend Michael Egnor would be talking about, I'm sure. So interesting. In terms of whether or not the quantum mechanics could be challenged, this was famously historically challenged by Einstein, Podolsky and Rosen and the so-called EPR challenge. This was resolved by something called Bell's Inequality, and they kept trying to prove Bell's Inequality. Now, the Einstein Podolsky Rosen Challenge was that quantum mechanics was this emergent behavior that looked random, but underlying it, there was something more deterministic going on. It's like you roll a bunch of die a few times, and it looks like the outcome is random, but if you look at the Newtonian mechanics of the way the dice were thrown and how they bounced around, etc, you would find out that it was indeed deterministic.

So that was their challenge. But Bell came up with an inequality, which was experimentally verified, gosh, I think... I don't know when it was verified, but they kept trying to apply and prove Bell's Inequality, but they finally got an experiment where things didn't collapse. They were having problems maintaining coherence of the experiment, but finally they got something which nobody could challenge. And I think that the randomness and the inherent randomness of quantum mechanics is pretty well established now because of Bell's Inequality,

Douglas Axe:

At least the non-causality, yeah. And that's in recent memory. It was maybe 20 years ago, 25 years ago.

Robert J. Marks:

Yeah, yeah. Well, it wasn't that long ago. You're right.

Douglas Axe:

Recent, if you're old, like I am.

Robert J. Marks: Oh, thank you.

Brian Krouse:

We have another interesting chapter in the book by Gary Habermas where he catalogs and discusses a bunch of fascinating varieties of near-death experiences. So this is an interesting example to maybe try to apply idealism to thinking about. So there's a bunch of flavors, but let's just imagine the variety, the "garden variety" of this, where you're in the operating room looking down on yourself being operated on. How do you think through that from an idealist perspective?

Douglas Axe:

So the worldview that that is most going to challenge... So let's take the example, and I've heard these, and I have a book, I've read several of these, where you're in the operating theater, your heart has stopped. You're clinically dead maybe for at least a few seconds, and you have a conscious experience where you're maybe even above the hospital. And I've heard once where you see something on the roof of the hospital, like there's a shoe, a pink shoe on the roof of the hospital, and then they revive you. By God's grace you live on, and you talk about this experience, and then they go up and there's the pink shoe.

So what happened here? Of course, I know a lot of people will say that these are fabricated. I'm certainly willing to believe that they're true. I haven't done independent research on them. What they challenge is a physicalist interpretation of humanity, because clearly if a human mind, soul, spirit can be separate from the body and conscious, then that's the end of it. You can't accept that if you're a physicalist materialist because now this would be proof, if you accept it, that consciousness doesn't necessarily have to have the physical body as a substrate. One can be conscious and aware, and even perceive true things that can then be validated and verified, outside of your physical body.

Brian Krouse:

There's some fascinating examples of... Just to interject another couple of flavors, there's some where you've got a near-death experience from a patient who was born blind, and then as part of their experience, their out-of-body experience-

Douglas Axe:

They have sight.

Brian Krouse:

-they have sight, and they see things in color, and they come down and once they're resuscitated, they could describe things from their visual perspective.

Robert J. Marks:

There's a great book by Bruce Greyson called After. Now he's a psychiatrist. He spent his life as a medical doctor looking into near-death experiences. He founded a journal which addressed near-death experiences. He started a conference, which is still meeting on near-death experiences, and he ended his book and says, "Man, there's just no explanation for what goes on even after all of these times." I

talked to the originator of Integrated Information Theory, Tononi, University of Wisconsin, and he's a neurologist. And we talked a little bit about near-death experiences. And he says, "Well, I don't believe in those because I can give you some LSD or some peyote and you can experience situations like near-death experiences." But just as you pointed out, it doesn't explain all of these things that happen, which are beyond a naturalistic explanation, like a blind person seeing, or seeing the pink shoe on the roof.

Douglas Axe:

So if we loop back to connecting this to idealism, I think the implications are very similar that a substance dualist and an idealist would view these quite similarly. It does go back to Brian's question about where is the mind? Because in this case, if we go to the person who was maybe clinically dead for a minute or something, and then has a visual experience from a perspective, maybe hovering over the hospital, in that case, it's not that... I'm going to answer as an idealist. It's not that the mind has a location, but the mind has been given a conscious perception from a vantage point that could in fact be located. And this person could say, "I was like 30 feet above the hospital right over here," or, "I lifted up from above the bed. I saw myself and then I was above the hospital." So certainly the vantage point, when you're interacting with the physical world, can be given a location. But that's different from saying that the mind itself has a location.

Brian Krouse:

And I suppose when you're in your body, and this equation in God's mind that's representing the external world, including your body and your brain, that is ordinarily being maintained by God's action in connection with our thoughts. And in this case, when you're out of body, you still are located conceptually from a vantage point within this equation. It's just that the action of God is not being mediated through-

Douglas Axe:

Brain function, presumably.

Brian Krouse:

-these elements of the brain function equation, yeah. It's just a little more direct, somehow.

Robert J. Marks:

Well, this has been a great conversation about Dr. Axe's chapter in idealism in the new book, Minding the Brain. Doug, I wonder if you could just offer us a summary of the things we've talked about, the summary and the gist of your chapter in a nutshell.

Douglas Axe:

Yeah. So really it's a chapter that tries to introduce idealism with the assumption that it's probably a foreign concept to a lot of people. And the chapter does that by interacting with two alternative worldviews. One is physicalism, the idea that there isn't anything other than the physical universe, and the other being substance dualism, which is the idea that there is a physical universe, which is hard material stuff, and within it are human bodies, which are physical, and within those bodies is situated an immaterial mind, soul, spirit. So this goes back to Descartes. And the hope of the chapter was that I could show, just through thought experiments and commonsensical reasoning, what goes wrong with those two alternative views. First, the physicalist view where it goes, I think, disastrously wrong; and less wrong for the dualist view, but also wrong in that there are things particularly surrounding how we

understand how God interacts with the material realm and with us, and bridging this gulf between the physical and the non-physical experience in a human body. I think dualism runs into problems.

And not only that, if we just look at people who have pursued physics as though it is the base reality, you end up with a version of physics that's a very strange reality and very hard to embrace as a base reality. It has all kinds of contradictions and conundrums that it throws up as though God, in making the physical structure to the universe, part of its beauty is that it declares to you, "I'm not the base reality. Don't look here if you're looking for what's the base reality." So that'd be my summary that I've landed personally on this idealistic view. I'm a Christian, and I think it comports really well with how scripture describes creation, God, humanity, how we relate. But I'm certainly open to further dialogue, and I recognize that it's a little bit of a head scratcher when you first encounter it. So part of what I was trying to do in the chapter is maybe resolve some of the things that seem weird about it, and let people think about it.

Robert J. Marks:

And I would recommend the chapter that Dr. Axe has written in the book, Minding the Brain. It's not written for the specialist, it's not written for the philosopher or a specialist in neurology. It's written to somebody that's educated and just wants to find out more about it. So congratulations on your writing style, Doug. We didn't have that success with all of the chapters in the book, but we did our best to enforce it. So thank you very much for being with us today. And thank you Brian Krouse for co-hosting with me and walking me through things which I didn't understand. And I can tell you, I learned a lot during this podcast, and idealism all of a sudden makes sense, so it's something I'm going to have to scratch my head about. So we've been talking to Dr. Doug Axe at Biola University about idealism. It's a chapter in the new book, Minding the Brain, and again, to find out more about the book, visit mindingthebrain.org. That's mindingthebrain.org. This has been a great time together. Until next time we meet on Mind Matters News, be of good cheer.

Announcer:

This has been Mind Matters News, with your host Robert J. Marks. Explore more at mindmatters.ai. That's mindmatters.ai. Mind Matters News is directed and edited by Austin Egbert. The opinions expressed on this program are solely those of the speakers. Mind Matters News is produced and copyrighted by the Walter Bradley Center for Natural and Artificial Intelligence at Discovery Institute.

PART 4 OF 4 ENDS [01:51:15]