From Material to Mind: Understanding Idealism
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Robert J. Marks:

Greetings and welcome to Mind Matters News. I'm your un-naturalistic host, Robert J. Marks, and I'm joined by a co-host, Brian Krouse. We've been talking to Dr. Doug Axe about his chapter in our book, Minding the Brain, which is co-edited by Dr. Angus Menuge, Brian, and me, and you can find out information about it in mindingthebrain.org. And we're talking to Dr. Doug Axe on his contribution to the book on idealism. So welcome back, Doug. Welcome back, Brian. And let's begin to talk about... 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:

Yeah. 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 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.

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 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 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 like planets orbiting the sun, that the sun has the role of the nucleus and the electrons are 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 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 and non-reductionistic? Could you tell us about that one?

Douglas Axe:

Yeah. I'm referring here to a physical phenomenon that's called entanglement. And really in this end, 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 in 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 could 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 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 you don't really have... 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 reviewing 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.

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 on the rover that is, the 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 who 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, this 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 pushed the button. In other words, the sequence of events is somewhat dependent on the observer's 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 push the button, the rover didn't make me push the button. I push 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 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 go down, 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've 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 thirty-three 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, that's astonishing.

Douglas Axe:

Yes. So 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 a 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 way 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. Well, 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, like the two-slit experiment, 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:

It's very interesting. So it is not really until the modern physics era that you could walk around with that classical picture in your mind, and that might have not been conflicting with any facts. But now that the science is in that picture is incorrect, and that underlying physical Lego block picture 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're not saying that the external world is just 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?

Brian Krouse:

Okay.

Douglas Axe:

And you are going to throw the ball to me and I'm going to catch it. Maybe you have a good pitching arm, and you're going to throw a particular kind of curveball or something to 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 motive thought that is the 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, are now intending to start the 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 that 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. It's like you have to think 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 you're crossing another barrier into the immaterial mind that you have. And you have replaced that middle stuff with this idea that's in the divine action, yeah.

Douglas Axe:

So in that sense, if I could just say doctrinally or theologically, the duelist has this 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 dog house and put it in my backyard, and then I go away, the dog house is there. It 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... 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:

And I see. 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 rather 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.

Robert J. Marks:

This has been fascinating stuff. We've been talking to Dr., Doug Axe at Biola University about idealism. It's a chapter in the new book, Minding the Brain. To find out more information about the book, visit mindingthebrain.org. That's mindingthebrain.org. So 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.