

# The Significance of Mirror Neurons: More With Dr. Mihretu Guta

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Robert J. Marks:

Greetings and welcome to Mind Matters News. I'm your conscious co-host, Robert J. Marks. I'm joined today by co-host Brian Krouse, who along with Angus Menuge and me, recently published the book *Minding the Brain*.

We're chatting with Dr. Mihretu Guta who teaches analytic philosophy at Biola University. And we're talking to him about his chapter in the book *Minding the Brain* entitled *Mirror Neurons, Consciousness and the Bearer Question*. For more information about this book and Dr. Guta's chapter, visit [Mindingthebrain.org](http://Mindingthebrain.org). That's [Mindingthebrain.org](http://Mindingthebrain.org). With that, let me give the floor to my co-host, Brian Krouse. Brian?

Brian Krouse:

Yeah, yeah. Okay. So last time we had a great start to our conversation. And just a quick recap, we were discussing this interesting neuroscience theory about mirror neurons. These neurons that fire when monkeys and humans watch others do actions, and it might be part of our ability to empathize with others.

And these mirror neurons researchers have identified what they think are networks of neurons, that when we're doing these cognitive tasks of observing actions and mirroring those actions that these particular neurons are firing. And, Mihretu, we were talking about, you're not here to settle this empirical question about whether the science is correct. But more you're talking about, you're trying to get some improved philosophical clarity of concepts that are involved in the way they're approaching this in the first place.

And we went through the topic of, well, we're first talking about what you call the easy problem, which you distinguish from the hard and the harder problem, which we haven't gotten to yet. But in the easy problem is really about how these researchers are correlating the nervous system's behavior with these cognitive functional properties, as you call them, the action recognition and empathy and things like this.

So under this banner of correlation, you noticed, okay, let's be careful because there's a tendency to jump straight to identity saying, "Hey, when we see a correlation, we're saying that therefore these nerves are the same thing as those cognitive properties." And also we have to be careful that, let's see, I guess we talked a little bit about causation.

But I know there's something in your chapter that was an interesting thing to discuss under this banner of correlation, which you called the Mirror Neuron Activation Pattern Principle. So maybe that's a good place for us to pick up and go forward. Tell us about what does that mean and why is that relevant?

Mihretu Guta:

Yeah, so Mirror Neuron Activation Pattern Principle, I have come up with this kind of, I've coined it myself, this is not something that I took from someone's work or something like that. I've been thinking about this for some time.

Let's say your neurons are firing all the time. So neuroscientists talk about the resting state of neurons. When they are at the resting state for very limited time, mirror neurons can be measured in a negative

sense. They might have, let's say in the resting state, they might be, let's say minus 70 millivolt or something like that, the electrical property of this mirror neurons.

But it would never be zero. They are always firing. There's activity going on, no matter how small or insignificant it might be. So the Activation Principle, when you are sleeping, your neurons are more restful and there isn't much activity going on. When you wake up, the whole thing kind of blows up because everything is so active and jittery and so on and so forth.

But the Activation Pattern Principle brings in two important things. One is when we observe the behavior of neurons, we are observing, for example, in the case of when they are active, we can actually correlate with a specific neuronal firing. Certain activities, for example, can be correlated with a specific neuronal activities. When we do that, what about the aspect and the region of a brain where neurons are still firing, but those are not part and parcel of our research project.

So we somehow ignore those. I call those, for example, correlation and specified neuronal firing. When neuroscientists who work on mirror neurons, when they carry out their research, they are always focusing on correlation specific neuronal firing.

Brian Krouse:

So if I'm understanding right, they've picked out a set of neurons that they're focusing on, and then there's other neurons that they're just not focused on.

Mihretu Guta:

Good. When that happens, there are also correlations that can happen without the specification. So stuff is happening at the background. So when you conclude something about the properties of mirror neurons just based on only correlation specific neuronal firing, your work is what I call under-determined. It doesn't give you a fuller picture. You haven't covered everything that needed to be covered.

And in principle, you could do that. Practically, you can't do that. It's impossible to know everything that happens at any given time throughout your brain. We all know that brain is incredibly complicated organ, right? The most complicated organs that we have known up to date. So this brings the problem of under-determination.

So whatever the neuroscientists are telling us about mirror neurons, probably they are really telling what is half-baked fact about what these cells are doing in our brain if they do exist, which means that without getting into details. So the observation that leads you to some sort of data which you will end up analyzing it, and based on your analysis, which you will end up interpreting, and then based on that interpretation, you end up concluding something about, let's say mirror neurons, is now called into question.

You see, because this principle, I don't see how it can perfectly be implemented. It's very, very difficult to implement this principle effectively.

Brian Krouse:

So if I understand it, this is just a pragmatic problem of the brain's just so complicated that you can't exactly go in. And how many neurons does the brain have? It's like 10 billion or something like that.

Mihretu Guta:

100 billion at least.

Brian Krouse:

100 billion.

Mihretu Guta:

Like best estimation, 100 billion. But each neuron makes 10,000 connections with other neurons. The synapses are going to be more than 100 trillion.

Brian Krouse:

And each of those could be something that you would have to correlate with to understand how?

Mihretu Guta:

Of course.

Brian Krouse:

Yeah. So it's just a very pragmatically challenging problem, computationally.

Mihretu Guta:

Computationally, let's suppose you have control, somewhere to control computationally, what's happening at the physiological level. That would still leave out what's happening at the non-mental level. Okay. As a result of what's happening here, you end up perceiving something in a certain way and having a certain kind of sensation of headache and so on.

That's not going to be part of the computation. Computation is not going to tell you anything about the qualitative nature of headache sensation. The headache sensation literally cannot be read of the neuronal cells itself.

Brian Krouse:

Yeah, you're 100%, like we were talking about in the last episode, you're 100% reliant on their subjective report of their mental state, which could just not be very accurate. And I've got all kinds of timing issues there too.

Their report is after they experience it. So how do you correlate the timing of when it occurred, when that happened before the report? With whatever neural things were happening at the same time? It sounds very hard.

Mihretu Guta:

Yeah, Brian, you raised a very, very good point here. We can use some example from quantum physics, the Heisenberg's Uncertainty Problem. So we all know that you can't know the position and the momentum of electron all at the same time. So if you have an information, let's say a piece of information about the momentum, then you've automatically lost information about the position and vice versa.

So the same thing is happening in your brain. Let's say if you use those brain imaging techniques, let's say fMRI, it gives you probably excellent time resolution, but a spatial resolution might be poor. Let's say EEG might give you a very good time resolution, you know exactly what's happening at any given time, but then you have no idea where signals are coming from.

So a special resolution is poorer. You can't have both time resolution, a perfect time resolution and a perfect special resolution all at the same time. As you would not be able to get even in physics when you want to measure the momentum and the position of elementary particle.

These are, in my view, these are not technical problems. I think just the reality is such that it's just the way it is, at least in the case of Heisenberg's Uncertainty Problem. It has nothing to do with a technological advancement. You just can't have both information at the same time. Something like that could be true of mirror neurons as well.

Brian Krouse:

Yeah.

Mihretu Guta:

In J.P.'s book, by the way, the new book that The Substance of Consciousness.

Brian Krouse:

J.P. Moreland, do you mean? Yeah.

Mihretu Guta:

Yeah, J.P. Moreland. I have a chapter that I contributed like appendix actually. Where I come up with a kind of quasi equation that I suggested based on Heisenberg's Uncertainty Problem. I use that equation and I kind of flip it upside down and apply to the time resolution and the spatial resolution problem and neuroscience. So we run into the same kind of problem here.

So I take that problem, not something that has to do with technological, lack of advanced technology. Probably we will never be able to tell both information at the same time, just as we would not be able to do the same thing when it comes to uncertainty problem.

Brian Krouse:

Okay, that makes sense. Okay. So all this, just to remind our listeners, all this are problems that fall under the easy problem, which is this task that the mirror neuron scientists are engaged in, which is trying to do this correlative work. But this isn't the only problem.

So maybe the way to get at the next problem, we could say, let's grant that they could do a rough correlation or a decent amount of correlation, and let's say they were able to do some of that. There's still the hard problem or the next problem, has to do with, can you go from that correlation to causation? Can you say that these things that we're seeing happening in the neurons are causing the mental properties? So why don't you talk to us about that hard problem now?

Mihretu Guta:

So the hard problem has to do with the problem of the functional properties of mirror neurons, which means that the psycho correlation seem that if you take psycho correlations in general, they seem to imply there is some sort of causation going on.

Brian Krouse:

Psycho correlations, you mean you're correlating something mental with something with the nervous system? Is that what you're talking?

Mihretu Guta:

Physical, physical.

Brian Krouse:

Okay. Physical.

Mihretu Guta:

Physical, yes. Psycho correlations are all about that. So it seems at the surface that one thing is causing another thing to happen. The problem with correlation, correlation wouldn't do that kind of stuff. So the best example to illustrate this point is to talk about an 18th century philosopher, British philosopher called David Hume.

David Hume was incredibly skeptical about causation. So he came up with a theory, what we call causation, is something that we project into things when we observe sequence of events. If you see 10 sequence of events, one after the other lined up, intuitively and common sensically, the first reaction you would have would be like to say, "Oh, yeah, event one is causing event two. Event two is leading to event three." And so on, so forth.

But he said, "No, what we're witnessing here is a spatial temporal contiguity." One event is next to the other event, another event and another event. And one event might actually succeed another event or proceed another event. If you take cause, cause actually proceeds effect. Effect, for example, succeeds cause, temporarily speaking in terms of time.

And what David Hume actually concluded from this, it's a very, by the way, detailed theory. I'm just watered down this in an unfair way, but anyway, it works, I think. So he said when we look at type of event A, for example, followed by type of event C, all we're witnessing here is constant conjunction. At no point we can be in a position to say that event A caused event B and so on and so forth.

So look, we don't have to agree with David Hume. Probably there might be a causal link between any given two events. But his model is very much applicable to research that neuroscientists often carry out based on correlation. Based on correlation, we can use David Hume's model to show that correlations are simply a sequence of events. One thing is correlated with the next event, next event, next event. It doesn't guarantee at all one event is causing the next event.

So let's suppose in the case of mirror neurons, let's take for example a brain region called Broca area. Let's suppose Broca area is a language production area, and let's say that area causes, let's say language production, LP. So we can generate what David Hume said about causation. Okay, B is a spatio-temporally contiguous to LP, language production area. So the Broca area is the population of neurons.

If they are said to have caused language production, then we automatically assume that, okay, this population of neurons are literally causing your non-physical capacity called language faculty, like ability to produce language or something like that. Well, you can say that language production succeeds Broca area in time and all events of type B are regularly followed by or constantly conjoined with events of type LP, language production.

Look, this doesn't guarantee that Broca area is literally causing the capacity you have to produce language. What the Broca area is actually helping us to see, somehow your non-physical capacity to produce language is correlated with populations of neurons in prefrontal lobe in an area called Broca's area. So you can't say convincingly, those population neurons are causing this non-physical capacity. But what you can say is when that region properly functions, when it doesn't malfunction, you always have this capacity to produce language.

When that part malfunctions, you will lose this capacity. But that doesn't mean that region is causing this capacity, but this is precisely what mirror neuron researchers are assuming. So somehow those regions of brain where mirror neurons are believed to have existed are doing all this magic, even to the extent of causing your political party, or what kind of drink you want to drink, Pepsi or Coca-Cola, or American hamburger versus Mexican food or something like that. The list goes on and on and on and on.

So when they say that, there's nothing that you can do others than assuming that they are assuming that the population of neurons are causing those kinds of preferences, but this seems to be extremely unconvincing. How can you? Saying is one thing, showing is totally a different thing.

And I can confidently assert that no neuroscientist whose work I have read so far, has given me any evidence of neurons having this kind of capacity to create non-physical phenomena such as my preferences for something over another thing and so on. So these are generally the huge problems that you see in the literature.

Brian Krouse:

That makes sense, that makes sense. So they take the correlation and they attribute it directly to causation. And I'm sure that probably, this might lead us to your last hardest problem actually, that this probably is connected to some metaphysical assumptions that they may or may not even be aware of or considering.

Which is if you assume that the brain explains the mind entirely and that's all there is, then they might assume, okay, well, if you see activity corresponding to something like language production in a particular area of the brain, well, that's it. That's what it is. But to your point, if you're careful about your analysis, the correlation doesn't equal causation if the language production is what happening somewhere else, I suppose.

As you get into talking about the hardest problem, I think now this is connected to the idea of the bearer, we're finally getting to the rest of your chapter title, which is about consciousness in the bearer. And I know you talk about something called the location problem and the misidentification problem. Does this have something to do with this assumption of whether everything is reducing to the brain? Or whether there's something more than the brain?

Mihretu Guta:

Yes. So the misidentification problem as the problem of let's say taking mental states in general and identifying them with nothing but brain states, reducing them to brain states. So physiological processes inside your brain. This doesn't really work because you asked me earlier about Leibniz's indiscernibility of identicals law, right?

Brian Krouse:

Right.

Mihretu Guta:

So we've already established, I can say something about my headache sensation that I cannot say about my physical state. Let's say the physiological process. The physiological process doesn't have any quality, phenomenal quality, but my headache sensation does have phenomenal quality.

Brian Krouse:

So by that Leibniz principle, they can't be identical.

Mihretu Guta:

Identical, yes, exactly. But when you commit the mistake of when you make the mistake of misidentifying, that's precisely what you do. For example, mirror neurons are non-mental properties in my view. But then when you read the literature, the mirror neurons are completely identified with brain states. So that's what the brain is doing. Those are population of neurons anointed in a special way to carry out such and such paths.

So what you see is what is true of those population of neurons. You are not supposed to make any distinctions. You have to accept for what it is. What that means is they are identical, which means that mental state is the same thing as brain state. So mirror neurons are nothing but what the population of neurons are doing in that region.

That I call a misidentification error, because that cannot be the case for so many reasons. So how can we solve the misidentification problem? And that's exactly where the bearer issue comes in. That's where the consciousness issue actually comes in. The hardest problem of functional properties of mirror neurons has to do with where to locate these properties? In the brain? Or in something that's not brain, but that works with brain, in a very closely, very interwoven sense.

So we cannot locate in the brain. If we were to locate these properties in the brain, then we've got to produce evidence. Evidence of, okay, these things are identical with physiological processes or electrical processes or chemical processes, but they do their magic. But then the qualities do not fit the brain to be the source of these things.

So as physicalists, they have to assume that burden of proof. I'm not saying that they can't do that. If once they assume they have to show us. Mirror neuron researchers, they don't talk about these issues. They just literally just talk about as if everything is completely taken care of and no questions being asked.

They just talk about these mirror neurons, how awesome they are, how amazing they are, how they saved our lives. They saved civilizations. They even link them up with civilizations by the way. They are responsible for human civilizations. I have no idea what that means, but they say that in a written form. So yeah, that's where locating is the problem of where is their house, where is their home? Where should they be housed?

Brian Krouse:

Yeah, there's a neat quotation that you had that I think is to this topic. If you don't mind, I could read this. This is by Bennett and Hacker and let's see. I know one of them was the neuroscientist. One was the philosopher, which I'm getting them backwards, which was the philosopher. Is that Bennett?

Mihretu Guta:

I think Bennett is the philosopher. Yes, I think so.

Brian Krouse:

But they wrote a book together that's quite well-known and yes, and so one's a neuroscientist. One's a philosopher. Okay, this is what they said. "Do we know what it is for a brain to see or hear? For a brain to have experiences? To know or believe something? Do we have any conception of what it would be for a brain to make a decision?"

"Do we grasp what it is for a brain, let alone for a neuron to reason? No matter whether inductively or deductively. To estimate probabilities, to present arguments, to interpret data, and to form hypotheses on the basis of its interpretations?"

So this is what you're getting at, right? You have the researchers might use this language that's attributing to the brain just directly these concepts that really belong to the mental. But they just sort of conflate them and don't, maybe not even conscious they're doing that.

Mihretu Guta:

Exactly. So Bennett and Hacker, they are not necessarily assuming some sort of non-physical self, being the bearer of these properties, but they are saying, "We should attribute these properties to the person as a whole. Not to the heart of that person, such as the brain." So they call that mereological fallacy.

The brain is not a kind of organ that's capable of doing these kinds of things. In fact, they are absolutely right on the money when they say that. Do we even have any conception of that? I think my answer is none whatsoever. But unfortunately, researchers always talk as if the brain is doing this, the brain is doing that, and psychologists talk about that. No one is asking how can group of neurons actually do such a thing? What is it that will mean?

Brian Krouse:

But they sort of just jumped to that conclusion because of this correlative research. Jumping right to the idea of causation. And I guess they're just locating these mental properties within the neurons themselves.

Mihretu Guta:

When they locate mental properties within the brain, by the way, they are not just locating them as distinct properties relative to the brain properties. What they are saying is they are part and parcel of the same thing. That's it. There's no distinction. They're not saying, "Oh, here are mental properties. We're locating them. And on the other hand, we have also a brain estates." That's not what they are saying.

They are saying, "We have one property in general, which is physical." Even if it gives you an impression that's an extraordinarily complicated property, it still is just nothing but what the brain is doing. Everything is just the same. Ultimately it's physical.

So they are not making that conceptual distinction or ontological distinction. They're just saying you cannot really talk about anything being distinct from what the brain is doing. So what the brain is doing is all there is about reality when it comes to human nature.

Brian Krouse:

Okay. That makes sense. And then what you want to do is you want to say, "Okay, now that we're conscious of, hey, what we really are doing is locating these mental properties here." You could say, "Well, and they don't fit." They don't fit with these things for the reasons we've talked about already. It raises the question, okay, where do we locate these mental problems?

Mihretu Guta:

That's precisely the question that I try to answer. And then the answer that I give is these properties, the functional properties of mirror neurons, are non-physical properties, mental properties. Therefore, they



are part of consciousness. Consciousness is sort of like an umbrella term. So all these mental properties in one way or another are under this bigger umbrella that we call consciousness.

When, okay, now you have to also ask another deeper metaphysical question. So consciousness cannot exist all by itself. Consciousness is not something like that can have its own house up in thin air. Consciousness must be born by its own bearer. Without this bearer, the kind of consciousness that you and I have cannot exist.

So it's not an independent property, it's a thoroughly dependent property because it's thoroughly subjective property. Subjective property cannot exist without subject. So if you locate and bring all of these functional properties of mirror neurons under the umbrella of consciousness. If you lump them with consciousness or part of consciousness, then you have to answer the second leg of the question, which is, what is the bearer of consciousness? And in general, what's the bearer of mental properties?

So what makes this problem the hardest problem is not only to make sense of how mirror neurons are related to consciousness, but it's kind of to push the issue one step ahead and say, "Well, okay, we've got what we want. So what is the bearer of all of these things?" So now you have to talk about the nature of the bearer and the properties that are being borne by this bearer. That makes it extremely, extremely hard.

Many people who work on consciousness research, they do not really bother about answering these kinds of questions. They just treat consciousness somehow. Okay, it's a complicated property. Let's understand why there is blah, blah, blah. So the bearer issue is almost something that I push, something that J.P. pushes, and we both believe very strongly and Brandon Rickabaugh, and actually I shouldn't say E.J. Lowe.

There are minorities actually who think that consciousness actually needs its own unique bearer. So that complicates our job so much because we have to work through it, and it even complicates even more the empirical research. Empirical research doesn't have access to, let's say to the bearer of consciousness. If you take the bearer of consciousness to be distinct from the brain or the body, you need to depend on metaphysics. You need to depend on ontology, not necessarily on empirical research.

Brian Krouse:

How interesting. Okay. So am I understanding you right? This bearer, it's sort of, it's the grounding of... Well, it's the location as we talked about, of consciousness more generally, but specifically in the mirror neurons context. It's the mental functions that we're attaching to the mirror neurons, that these are where they are, it's located in this bearer. And it's non-physical. Are you saying that much, that this bearer must be non-physical?

Mihretu Guta:

Yes. So the bearer idea is extremely controversial, as you guys might know. Because there are philosophers who think that we are nothing but our brains or we are nothing but our bodies. And others would say that the bearer is a fictional entity. We have to assume, just like a mathematical axiom and then drive some sort of theorem.

It doesn't have to be true. It doesn't have to be grounded in reality, but it helps us as a formal notion to make sense of other things. Let's say Immanuel Kant, for example, proposed the self as a formal notion to understand the nature of phenomenology or experience and so on. Other philosophers give different kinds of interpretations.

But people like J.P., E.J. Lowe, myself included, and others, we take the self to be a complete non-physical entity that is metaphysically needed to bear mental properties, and we need brain so that the brain bears physical properties. So it's completely distinct.

Brian Krouse:

Yeah, because it can't just be a helpful concept like a frame, something we use to help our description of what's going on. It has to have some kind of ontological substance in order to be a location, the source of these things like consciousness. Is that right?

Mihretu Guta:

Absolutely. So if you know David Chalmers, with whom I have had so many opportunities to interact face-to-face about these issues. He writes a lot on consciousness and he's one of the world's leading thinkers on the problem of consciousness. And he doesn't really talk about the bearer of consciousness, and he doesn't write about it.

He doesn't raise the issue, but he talks about the consciousness being non-physical. It's irreducible. We cannot reduce consciousness to physiological processes in our brain. A consciousness is extremely unique kind of property in its own right, but it resides and it's located in this physical universe. But the scientific laws that we have discovered so far are unable to help us kind of 100% understand the nature of consciousness.

So we need to have another brand new scientific laws to make progress. And he does very interesting works. So David Chalmers takes consciousness as a non-physical property, but at the same time, he doesn't propose a unique metaphysical bearer for consciousness. He definitely rejects physicalism in all his forms, but he's not dualist. He is kind of a naturalistic, what he calls naturalistic dualism, his version of dualism.

This is a very complicated issue because it really takes us back to a thick literature discussion on philosophy of mind. But as far as I'm concerned, I don't really establish in this chapter, I don't argue for any particular position on dualism, but it's implied there. So I take this bearer as a non-physical entity, distinct from the brain, distinct from the body. So I am willing to be labeled as, let's say, a substance dualist of some kind. I'm okay with that.

Brian Krouse:

Good, good. Okay. That's helpful. And certainly, I mean, that's where you land, but you landed there because you're really trying to get conceptual clarity on these things like identity, causation versus correlation, the location for mental properties. It has to be a proper location to support the kind of properties they are.

And then that's led to you to say, "Hey, this bearer must be this ontologically real substance to ground this consciousness." So once we've done that, how do you think? Let's assume you had a cadre of mirror neuron scientists that went with that. How do you think that would change their work on mirror neurons?

Mihretu Guta:

I think it will change in so many different ways. First of all, it will bring conceptual clarity. Conceptual clarity is very important because they would have to modify so many assumptions that they've already made. For example, some of the things that we've talked about earlier.

Okay, mirror neurons have been taken to be literally mirror neurons. They're the brain cells that really help you make decisions to vote for one party over another or something like that. This seems to be a bit unclear to me. It's in fact, to be honest with you, it's a bit nonsensical. I don't think mirror neurons have any way of making us do that kind of stuff.

So all of the mistakes, all of the confusions, lack of conceptual clarity that we attribute to mirror neuron researchers, will be automatically, I think, be improved in my view, if they really kind of adopt a modest suggestions that I've made in this book. And look, one problem that I often notice in scientific research when I read the literature is the tendency to, from the get-go, we have to solve this problem.

That's it. If we can't solve this problem, then we have to assume this must be the case. You don't have to assume from the get-go physicalism, nor should you assume from the get-go dualism whatsoever. Just approach the issue on a neutral ground, and if the data leads you to one way or another, just simply follow the data. Easier said than done. I understand that.

But this kind of a, in principle, pre-cooked conclusion about how things should be if they are going to be taken as if true things, it will always kind of affects the quality of your research. So I think the suggestions that I've made in this chapter are all very, very modest. I think it will improve so many things. Like all the problems that I've raised, I think they will be out the window in my view.

It doesn't mean that neuroscientists should agree with me. I'm not saying that my arguments are perfect, but at least there are good reasons why we should approach these issue by bringing philosophy, metaphysics, ontology, and science. So we both have to work together for a common good, for a common goal.

But if we are in our own cubicles doing our own thing, the outcome is always very, very bad because it's just all about confusion after confusion. I think that would be one payoff, Brian, as I think about this issue.

Brian Krouse:

Yeah, I like that. There's another quotation, short one from Denis Noble in your chapter, who I know is not a dualist, but I'm sure you would agree with him on this. The quotation is, "The first step to scientific progress is to ask the right questions. If we are conceptually confused, we'll ask the wrong questions."

That sounds to me like really what you're getting at is if you are making mistakes about identifying mental and neural things directly, or causation where you just really know correlation, and jumping to the conclusion that the mind must be located in the brain, these sorts of things. Then it's going to be difficult for you to make proper scientific progress because you'll assume things that aren't true and won't ask the right questions.

Mihretu Guta:

Absolutely. So the tendency is that science has got the key to unpack any mystery that we are struggling to understand. I think that's not the case. That's automatically false. I mean, science makes its own contributions and it has made immense contributions. It's making varied contributions. It will continue to do so. So therefore philosophy and other disciplines as well in their own context.

So reality is one gigantic, huge stuff, and a piece of a slice here, a piece of a slice over there, can be studied by different domains of human inquiry. And I don't think we have to anoint scientific approach as the only approach or the only kind of successful approach to understand things. I mean, if you take this chapter, I mean, it should demonstrate very clearly. I am not a medical person, and I read neuroscience a lot, and I teach neuroscience, philosophy of neuroscience.

Look, my expertise is extremely important for this project. You see, if I were to team up with mirror neuron scientists, I would give them ideas about what they conclude as a result of their experimental work. Because their experimental works consists of observation, data analysis, interpretation, and conclusion and so forth.

All of those steps, by the way, are not scientific steps. They immediately involve philosophical reflections. Interpretation is a philosophical enterprise. You are interpreting your reasoning about what you've observed, your reasoning about the data you've collected. You're analyzing the data you've collected and so on. All of those things are philosophical activities.

Even neuroscientists might not know that to be the case. I'm pretty sure most neuroscientists do know that, but they typically forget that, oh, they are only doing science and so on. I think that kind of a silly mistake has to be improved and has to be eradicated completely for us to be able to make good progress in what we do.

I think that's often an issue. Oh, science is just uniquely equipped to unpack the mystery of reality. I think that's, even that claim itself is not scientific. It's a philosophical assumption about what science is supposed to do or believed that science has a capability to do.

I think our perception of science, our perception of philosophy should be a little bit kind of tweaked a little bit. So philosophers, they should respect science. Scientists, they should respect philosophical contributions. I think we need to come together, we need to work together, and I think the outcome will be awesome.

And we should not necessarily solve mysteries. I don't think that should be our task. I think if you are predetermined, if you convince yourself from the get-go, I have to solve this. The problem is when you fail to solve that problem, you will cheat actually in so many different ways.

You will bring these outrageous assumptions. I have to make this thing work. I have to make this thing work. Then you don't follow the truth as a result of that. You will be very rebellious in your attitude toward what you're doing. So I think this is a part of a mini-preaching, but I think it's very important to remind ourselves about that.

Brian Krouse:

Yeah. It sounds to me like what you're saying is you're not pitting one against the other. You're saying that to do the best science, you need to do good philosophy because that's all about conceptual clarity. Clarity in your thinking, not jumping to conclusions. Not making assumptions prior to seeing where the data leads you. So that makes a lot of sense to me.

Mihretu Guta:

And, Brian, one thing I should add, Bennett and Hooker actually have a misguided view or conception of philosophy, and they think that philosophy's job is nothing but clarifying concepts. I think that's a completely an inner starter.

Philosophy, metaphysics absolutely reveals the nature of reality, and there are a ton of other ways to show and substantiate that claim. But I think philosophy is not just a tool where it's kind of clear. Philosophy is not a linguistic enterprise. Philosophy is a very serious thinking about very serious things.

Brian Krouse:

Yeah. As an example of that in your chapter here, is that you used the philosophical clarity to think about the mental properties and their distinctions from the physical properties. And when you think

about, well, they have to be located somewhere. This is leading you to make an inference about the nature of reality. There has to be some non-physical grounding for consciousness, and that's the bearer.

Mihretu Guta:

Absolutely. So the issue of, by the way, the issue of consciousness, the nature of consciousness and its bearer, these things cannot be resolved on the basis of empirical research alone. If anyone thinks otherwise, good luck. Take me to any laboratory anywhere in the world where scientists would show me, "Here is the bearer. The bearer looks like this. Here's the nature of consciousness."

You can't show me. You can't draw blood from my body and just show me what these things look like. These are metaphysical issues, highly abstract issues. But what neuroscientists can do, the facts that neuroscientists helped us to see about the physical organ, what we call brain and how it works, and what happens inside our brain when we do certain things. Their expertise immensely contributes to our understanding of how brain actually functions.

And when answering questions like the bearer question, the nature of consciousness, and so on, there is nothing that the lab work really shows me to understand any of these things. So you need a metaphysician. You need a philosopher to come alongside and say, "Okay, you've shown me this from the empirical side. Let me show you from the non-empirical side. Let's do combo and crank out what works out of that exercise." You see, we can't get away with this cheap claim that philosophy is irrelevant to this project.

Brian Krouse:

That's great. And this is probably a great, great point to stop on too. I think we've done a great job covering your very interesting chapter. And I think this chapter really exemplifies what we're going after with the anthology as a whole, which is to explore the interaction between philosophy and empirical sciences around this topic of the nature of the mind and the brain.

Robert J. Marks:

Well, thank you, guys. I've been sitting here listening and learning a lot, not contributing at all because my mind is just a big sink sucking everything in. So thank you very much.

Brian Krouse has been talking to Dr. Mihretu Guta. And Dr. Guta teaches analytic philosophy at Biola University. Brian has been talking about his chapter Mirror Neurons, Consciousness and the Bearer Question, in the book, *Minding The Brain*. And it's edited by Angus Menuge, Brian, and yours truly.

For more information about the book and to read Dr. Guta's chapter, visit [Mindingthebrain.org](http://Mindingthebrain.org). That's [Mindingthebrain.org](http://Mindingthebrain.org). I'm Robert J. Marks, and until next time 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](http://Mindmatters.ai). That's [Mindmatters.ai](http://Mindmatters.ai).

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