The Non-Physical Nature of Being: More with Dr. Selmer Bringsjord

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Pat Flynn:

Hello, everybody, and welcome back to the podcast. This is your host, Pat Flynn, and we are continuing our conversation with Dr. Selmer Bringsjord, who is the author of the fascinating article titled Mathematical Objects Are Non-Physical, so We Are Too. This is found in the recent volume, Minding the Brain. In part one, we provided a broad overview of this argument, which I find absolutely fascinating to me. It has roots all the way back to Aristotle.

It's a very unique argument for the immateriality of the human person. It doesn't really focus on consciousness or qualia like a lot of arguments against physicalism tend to. Instead, it focuses on formal thinking. It's a little bit of a technical argument, but we did the best we could to present it, at least its general thrust in a simple way, in part one. If you haven't listened to that episode first, please do so.

Provided some necessary stage setting for what we were going to do next, which is really dive into the specifics of Selmer's development of this article. Selmer, it's great to have you back. In case somebody just decides that they want to skip part one for whatever reason, at least it'd be good to hear a little bit about you again, if you wouldn't mind just a brief reintroduction of who you are and what you do, and then we can dive into stage one of your argument here.

Selmer Bringsjord:

Sure, Pat, thank you very much. Good to be back. Yeah, so Selmer has been thinking about the intersection of mentality or the mind, and formal logic, and aspects of parts of mathematics, generally in the computational arena, for a very long time. Probably started giving thought to the general shape of this argument when he was quite young, but it was thoroughly incompetent, maybe because of his age, maybe in part because he wasn't sufficiently mentally endowed himself.

Then the more I investigated it, the more I was convinced that there's something really sharp going on here. Then when I got from the high school consideration of it to the college and graduate school level, where I was blessed to have two proponents of aspects, I think, of the argument or parts of the argument, I started to take it more and more seriously.

Then in my career after graduation, I've been able to articulate versions of it live in debate in many conversations. In this article, the one you allude to, the paper here, has provided an opportunity to work out many of the details, and then following on that, to try to make it understandable for, let's say, a general audience. If that doesn't work exactly, then scientific American level presentation. That's where we are.

As we know, the bottom line is, so the argument goes, if it works, step one is these formal objects, logical mathematical objects, are all the way from the number four to infinite sets, like Z-sub plus, which students learn is the positive integers, the more complex things, and including algorithms, which are a big deal in today's AI infused world, are non-physical.

Step two is based on asking the question, "Well, if these things are non-physical, what is the nature of us, since we certainly seem to relate to them in predictable, deep, understandable, and profitable ways?"

Pat Flynn:

Yeah. Yeah, that's a great overview. Just to give people a quick refresh or recap, this is an argument that was sort of brought back on the contemporary scene by one of my favorite philosophers, James Ross. I think he's just an absolutely brilliant thinker, and he argues that all formal thinking is determinant. We explain that when we're using the term determinant in this context, it's about meaning.

We're not talking about debates of free will and determinism, but it's about meaning, that formal thinking has a very or exact meaning. We use the simple example of triangularity. We're thinking of triangularity, we're thinking of triangularity as such. The problem, as Ross points out, is that no material thing, no physical process is ever completely determinate or exact in its meaning. Any particular triangle drawn on a board is always open to a number of various alternative interpretations.

What does it represent? Small triangle, red triangle, isosceles triangle, the obscure forgotten pop band triangle, right? There's nothing about the physics of the matter that can nail down the determinacy of meaning that is required if we're really sufficiently reflective on the nature of formal thinking. Ross concludes that, "Hey, well, that just means that formal thinking is not determinant," but you developed this argument differently.

I think Ross's way of presenting is a good way just to introduce people to the general idea of what he's up to. What I'd like to do now, Selmer, is really focus on that first part of your article. Of course, I always love articles that just the title is exactly what the argument is, divides very neatly. Yours is called Mathematical Objects Are Non-Physical, so We Are Too. Let's dive in now, Selmer.

If you wouldn't mind, let's start to think about that first part of your title. Mathematical Objects Are Non-Physical, and let's just assume that people are coming in with no background whatsoever here. We should take our time to carefully define terms. What are we talking about? We're talking about mathematical objects. Then what sort of arguments do you like to deploy to demonstrate that these are non-physical? Help us understand.

Selmer Bringsjord:

Yeah, sure. I'll give it a shot. We have to make a selection from among the array of possible non-physical formal objects, non-physical things, what I call logical mathematical objects, to get off the ground in order to make it digestible, non-technically. We've got to do something. We can't just talk in abstractions about these objects. You did a great job in that regard. You picked triangularity, which is awesome. That works well.

I now have come to the conclusion that, because of the nature of the real world, at least the real technologized world, that algorithms are probably the thing to turn to.

Pat Flynn:

Sure.

Selmer Bringsjord:

Ross goes with predominantly what I happen to teach most, which is a so-called inference schema, or a rule of inference. For example, someone says, "If this thing is true, then that thing is true," and if the interlocutor buys into it, and then let's assume that's the case. Then the next thing that's said is, "Yeah, but in addition, this if thing, the first part of the if-then is in fact true, so don't you see that you must accept the then part, or what's called the consequent?"

Nine times out of 10, or 99 times out of a hundred, everyone, neurobiologically normal, mature adults are going to say, "Oh, yeah, yeah, I'd have to be forced to accept the consequent." Now, that's modus ponens. You mentioned the historical roots of a lot of this argumentation, that's pretty darn ancient, because Aristotle had a lot more than that. If you took that away, if you took that general schema away from Aristotle, he's dead.

Now, I'd love to go with that and I'd love to go the Rossian route with that. We do use one in the paper called modus tollens, but I have come to the conclusion again that algorithms are better. Why? Almost everything you touch these days, if it's technological in nature, is running on the strength of someone turning algorithms in the abstraction into a physical thing that embodies the algorithm. Usually, the algorithms are sewn together.

The algorithm we consider in the book is a very famous one. Okay. It's a sorting algorithm, merge sort. All it does, take in jumbled numbers, N of them, maybe you could say letters. You have the background English alphabet. The task here is, suppose I throw 10 letters at you, or 10 names, if we're going with the first letters.

Tell me how you're going to make sure the output from receiving this input is a nice, neat list, starting if there's an Albert in the list, starting with A, and then if there's Zebrowski, that'll be the last name if we're going with names A to C. Tell me how you're going to do that. The beauty of this is even people who don't know about the great discovery of merge sort, QuickSort, will say, "I can do that. Here, watch, I'll do it." They start embodying an algorithm.

People who learn about how to build AI systems of any kind have to use algorithms across the board. Okay, great. Are you sure you understand the background algorithm is the next question. I think so. Oh, okay. Write it down for me. Tell me what your understanding of what that algorithm is. If they get it right, and let's suppose they do, you can turn to their classmate or someone else working in the same domain and say, "Well, you write down the step-by-step process."

An algorithm is a step-by-step description, basically, of how you get, it's got to be finite, it's got to be well-defined, et cetera. "You show me how you would express the algorithm." I guarantee you in a classroom, they don't match up. Then if you walk down the hall and go to some professor in computer science and say, "Hey, you know a lot about these things called algorithms. Well, can you tell me what your favorite," or maybe since they're more learned, you say, "Well, you tell me how the most famous and still used algorithm for sorting these names works. Write it down for me maybe on the whiteboard, or type it for me."

They all know about QuickSort, which is in the chapter, and they're going to write down, if they obey and listen, they're going to write it down. That's not going to be the same as the second person you asked. From the standpoint of instruction and understanding, this is odd, are we ever going to stop? No, we're not. Now, we're at the point where people, they might get promoted or not based on how well they teach things like QuickSort.

Pat Flynn:

Right.

Selmer Bringsjord:

How do we make sure they're doing a good job in getting it across? How do we make sure the students really are learning it? We have to face the fact that there are endless ways to physically embody this QuickSort thing, but the understanding of it cannot consist, and this is part one in the argument and the crux, there has to be a relationship between the understander, the learner, the professor or either of the two students, or the end students, and the thing that they are incarnating and demonstrating they understand.

Well, what would that relation be? Is that a relation between them and a particular physical thing? Well, it can't be, because that would mean that someone understands, and then someone doesn't understand. The idea is everyone understands genuinely when they understand the thing, which is QuickSort. Well, what are our options here? What would that thing be? Let's just pretend, nonetheless, that QuickSort, the algorithm, the sorting algorithm that arranges these inputs, again, could be letters, capital Roman letters or Roman letters.

Could be numbers, could be a range of one to 30 all jumbled. If we say it's a physical thing, this QuickSort thing, well, then, we have no answer to the question of what is being understood here. There are endless infinite supply of physical things that can't be it. If the professor's going to be evaluated by the dean, I guarantee you on how well the student, I guarantee you that that Dean is not going to be bold enough to say, "Hey, listen, I have QuickSort here. I wrote it down. Bring this to the students," or,"You show me a demonstration that he really does produce understanding in class at that."

The response that would inevitably come back is "Dean, that's a particular embodiment of the algorithm. That would be unfair." This is real concrete, undeniable stuff that we have to deal with if we're objective, if we're rational, of course, we're talking about intellectual domains in general here, we're talking about algorithms, but they're not just widespread, they're ubiquitous. Every time you get your car diagnosed if there's a problem, there are algorithms running in the background to figure out when the darn thing is plugged in, if it's a new car and all software based.

Why are these warning lights being thrown? What does that indicate? That's going to be an algorithm. It's probably going to be the same algorithms, whether it's, in some cases, Toyota or Ford. This is concrete stuff. Again, the first step is, there's got to be a relation, or non-technically put, there's going to be a relationship between the user of the concept, QuickSort, or whatever the general name is, and the thing. Could it be our relation between our learner or understander, the agent, and a particular physical thing? No, for reasons already explained.

What do we say? We could say that no real understanding in a deep, unshakable sense is taking place. There are people who would say that. They tend not to be in the business of teaching in the areas that we're talking about, or you can say, "Uh-oh," as we argue in the book, "Uh-oh, it's got to be that one thing, and that one thing is not located in space and time. That one thing is immaterial or non-physical."

Pat Flynn:

Right. Yeah, that's really good, Selmer. I wonder maybe if we could just get a little bit more mileage out of the triangularity example too. It seems like a lot of the things that you just said or argued would still apply is draw an infinite number of triangles. Where is triangularity? You have all these particular triangles, but none of them are triangularity as such. Somebody might say, "Well, maybe we just don't understand triangularity. We're just thinking we do."

As we indicated in the previous episode, that sort of, I think, extreme option really sort of implodes, it's self-defeating. To deny that you understand these things, to deny that you understand triangularity, assumes that you understand the thing you're denying. Otherwise, you don't know what the heck you're even talking about, right?

Selmer Bringsjord:

No, absolutely. Pat, you know what? Thinking here with you about triangularity, I realize, I think, that it has advantages that some of the other specimens Navina and I cite and use, and some of the others that have come up in this conversation, is quite advantageous, quite revealing. The reason that strikes me is that if you go with triangularity, and you do write it down, and someone says, "Um, yeah, I can write a triangle down for you," and that's pretty much going to be it.

That's triangularity. I'll write it down for you on my piece of paper on my desk. Some wise, clever, but wise, wise-ass student, as someone might say, "I'll write it down, I'll write a triangle, and then I'm going to step back, going to point to it. You know what? Professor, or Pat, or Selmer, that's it. It's right there." Well, maybe it's a family resemblance, but look, it's physical. Well, actually, there's a big problem here.

If you take that piece of paper, and if you're adroit enough, and you start moving it so that it becomes a sphere, okay, now, that's impossible to do with what's been written. We actually, of course, and you know this, we know that depending on what you write a triangle down on, a sphere, we're going to get, these are alternative non-Euclidean geometries.

Actually, triangularity, to have a deep understanding of triangularity, deep as in you're studying some geometry in school, you made it, you got a classic high school math education, let alone college, actually, you aren't even going to understand triangularity if you don't understand how the physical embodiment of what you construct or write down starts to morph the thing.

Now, you end up with the sum of interior angles being more or less than 180 degrees. You write it down on a sphere, or globe, or what have you. That just intensifies the sort of dangers you get into in pinning things down by physical. You got to go back and look at the nature of Euclidean geometry, Lobachevskian geometry, and Riemannian geometry.

For a student in high school, I don't think this is done, but if you've got some "gifted students" or what have you, you want to tell them, "Oh, yeah, yeah, yeah. Look, the formal specification over here from Euclid, that's pretty close. That's the background for what you wrote down on the paper, but what you wrote down in the paper is still just an incarnation. It doesn't get at the background true concept of triangularity, which is better expressed and pointed to by Euclid in these postulates in our theorems."

Then you have to say to the student, "Oh, yeah, you know what? Be really careful in thinking that physical embodiments, physical things, help you get at the nature of any of this." It's particularly true in the case of triangles, because of some changes we can make in the underlying Euclidean specification.

Pat Flynn:

Yeah, and I just want to impress again that first off, any physical embodiment is always imperfect. You might have to use some special equipment to discover those imperfections, but that's always going to be the case. Even setting that aside, they're always inexact. Their meaning is not determinate. You just put any, no matter how neatly you draw it, put a triangle down on a piece of paper, it is always open to alternative interpretation.

Somebody might think that it represents a yield sign. Somebody else might think that it represents a small isosceles triangle, or what have you. What we need to account for is the determinacy of meaning that we clearly have when we think about things like triangularity as such. Part of the reason I said that this argument has ancient roots is you think of various philosophers, especially medieval philosophers, think of somebody like Aquinas, they very clearly distinguish between imagination and intellect, and perceptual ideas versus conceptual ideas.

I think this argument sort of tracks those distinctions in a very provocative and fascinating type of way. The only reason, I love your example, Selmer, and the only reason I keep coming back to triangularity is just for pedagogical purposes. I think you can, of course, develop this argument more rigorously with the more technical examples. My purpose, my hope, is to help people really just get the basic understanding of this argument, and hopefully really feel its force.

Again, not to jump ahead, but even this first step of the argument, as we mentioned last time, is very, very significant. Set aside the further step of whether we have an immaterial aspect, as soon as we've demonstrated that there is something immaterial out there, that's not a comfortable thing, it should not be a comfortable thing for anybody who's a hardball physicalist or materialist. Even if you still want to claim that we're entirely physical, we just somehow relate to a immaterial thing, that's still really bad news for physicalism.

That is not the sort of thing that any physicalist should be willing to entertain, which is why I think the physicalists who are committed to physicalism hell or high water, who see the force of this type of argument, really just try to bite the bullet and just deny that we really have this type of understanding. I think that that position, as we said earlier, Selmer, is not only absurd, I think it's flatly self-defeating. I think it's incoherent, and there's just no possible way of taking that option.

Again, just trying to get people to understand that even the first step of this argument is very significant. I'm not sure, is there anything else that you want to say? I know there's obviously a lot more in the article, and I will, of course, strongly encourage people to get the volume and read the article, because it's a very finely written article, where you address various objections go into much more detail. Here, we're just trying to give people the basic idea or general understanding. Yeah, back to you. Anything else you want to say about this first stage of the argument?

Selmer Bringsjord:

I don't think so. What you most recently said there is really excellent. I don't have much to add. I think for what it's worth, autobiographically, what you say can be played out very quickly in discussions with people who do have the mindset of the thorough going physicalist, and yet at the same time trade in concepts like triangularity, or for the algorithmic space, algorithms. They may get paid half a million dollars for coming up with better algorithms for how we have a new large language model before us, and how we actually get to the point where we have a deep neural network.

It only takes a couple minutes in conversation with people who are of, let's say, that dual mindset, they're all going physicalists, but yet trade in professionally the kind of things we're talking about to ask the kind of question that generates step one in the argument. It's just not difficult. Whether anybody believes it or not, I have witnessed some deep soul-searching that starts almost immediately.

I can try to brush it aside, and remain confident, and resort to rhetoric, but I'm pretty sure, as you point out, Pat, that first step, raising it, even, has some power.

Pat Flynn:

Yeah. Obviously, I agree with that, because I'm prone to agree with myself fairly often. The one last thing I want to emphasize before we hit pause before we enter into the third part of our discussion, is that, yeah, look, in general, when it comes to making philosophical arguments, it's usually a matter of just showing people what the cost is going to be if they're going to maintain their position.

You present an argument that really places attention within their worldview or their various commitments, and then says, "Hey, here's how you can get rid of this tension. Here's a range of options that you can do to get rid of this tension." A good philosophical argument presents a very serious tension, and it limits the range of options, where one option would be to get them to change their mind in the direction that you think is correct, but leave them with another option, and it is a very, very serious cost.

Now, sometimes serious costs can be embraced without outright absurdity or contradiction, but the thing I really think is true about this argument, and why it's always had such a grip on me, is I don't think the alternative option is really an option at all. It just doesn't seem like a cost that can be reasonably sustained. It's rare that you find, it's really rare, honestly, that you find a philosophical argument with that level of force. There's a lot of good arguments out there, philosophical arguments, that have various degrees of force.

This is one that I've returned to over many years and think it's a serious contender. The only downside is it is a little bit technical, so it's kind of hard to impress upon people who aren't totally familiar with thinking about these things. Selmer, I think you've done a great job so far in getting some of the basic ideas across. For people who want to understand this better, I will point them, of course, in the direction of Minding the Brain, the excellent volume that's been under discussion, which features your article.

If people want to just revisit some of the roots as well, we mentioned James Ross. I believe you can still find his original article, The Inmaterial Aspects of Thought. I think people can just find that open access, and I know he develops this a little bit more as well in his very excellent book, Thought and World. Those might be some further resources that people can add to their own research project.

Selmer, before we pause for part three, anything else that you want to say about people who are interested in this argument of other resources that you have found helpful in understanding it?

Selmer Bringsjord:

No, that's great. I don't think so. Fantastic. Fantastic, Pat.

Pat Flynn:

All right. Well, everybody stay tuned. This is the conclusion of part two with Dr. Selmer Bringsjord of concerning his excellent article in the Minding the Brain Volume, Mathematical Objects Are Non-Physical, and So You are too. When we return, we are going to talk about the you part. What is it about you in relation to this argument that is immaterial? Stay tuned. We'll talk about that next time.

Annnouncer: