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Ontological Functionalism: You are an Abstract Computer

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By

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Abstract

The Following thesis explores the application of machine-state functionalism in ontology. I take the position that physical things are explainable in terms of a Turing machine originating in abstracta and can, therefore, be reduced to abstracta.

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Intro

The ultimate constituents of the universe are abstract. Just as traditional machine functionalism in Philosophy of Mind reduces mental states to a Turing machine completely describable in physical terms, the same sorts of arguments show that physical objects are reducible to a Turing machine originating in abstracta. Such a deeper level reduction is warranted by Ockham's Razor, the guiding principle in ontology.

To show this, it is important to begin by presenting the traditional problem of ontology and why it remains an important issue in metaphysics. I also show that other important philosophers have defended ontologies of abstracta and justify the use of Ockham's Razor as a guiding ontological principle.

Next, I explain the difference between abstract and concrete entities, endorsing and developing a view developed by Nelson Goodman in *The Structure of Appearance*, arguing that his view is superior to the accounts of abstracta offered by philosophers such as David Lewis, David Efrid, and Tom Stoneham.

Then, I show how traditional machine-state functionalism operates in Philosophy of Mind. This is a crucial part of my thesis since I apply the same sort of reduction to a deeper level of ontology.

Finally, I show how the arguments that reduce mental states to functions of brain properties can be abstracted out of Philosophy of Mind to reduce physical objects to functions of abstracta. I conclude by considering and replying to a potential objection to my view.

Basic Problem of Ontology

Ultimately, this paper is an explanation and argument for my ontology. In the following section, I will first discuss what kinds of problems are studied in ontology. Then, I will discuss what kinds of measurements we have to judge whether or not an ontology worth maintaining as true. Finally, I will put my project in the scope of the problem and discuss why ontology matters at all.

My saying that the ultimate constituents of the universe are abstract is an attempt at solving the most basic problem in ontology. But, what question am I answering when I say this? Philosopher W.V.O Quine states the problem saying that the question can simply be put "What is there?" And, Quine states that the obvious answer to this is "Everything." But, this answer is not satisfactory. Of course, all there is is all there is, but this does not tell us anything about what exists other than that it does exist. So, the real issue is the nature of what exists. To answer the question of ontology, we must identify the constituents of reality and posit their nature.[1] To apply this to my Project, I am arguing that what is entirely abstract. And, that these abstract things are the originators of a function that result in a seeming physical universe.

Of course, there are many different answers to this question. But, not all answers are equally satisfactory. I could answer the question "What is there?" in a near-infinite number of ways. I could say something like, "The ultimate constituents of the universe are frogs and God and ideas." What would make this statement any better or worse than

[1] Quine, Willard V. "On What There Is." *The Review of Metaphysics* 2, no. 5 (1948): 21-38. Accessed February 16, 2021. http://www.jstor.org/stable/20123117.

other ideas of the things that make up reality? In short, philosophers use Ockham's Razor to evaluate ontological claims. Generally, a slightly modified version is used that states, "Do not multiply types of entities beyond necessity." In other words, any ontology that has an unnecessary type of entity[2] is less preferable than an ontology that does not have unnecessary types of things. And, in an attempt to be as efficient as possible, philosophers must try to rid their ontology of unnecessary types of entities wherever possible.

Additionally, Bertrand Russell has his own version of Ockham's Razor. He states, "Wherever possible, logical constructions are to be substituted for inferred entities."[3] Essentially, Ontological categories should not be inferred without sufficient evidence. I intend for my ontological reductions to act to show a lack of sufficient evidence for the existence of physical objects.

Ultimately, I am seeking efficiency in the way in which I explain the world. Another, possibly more helpful, way to phrase the problem of ontology is, "How can I explain everything I see in reality with as few necessary components as possible?" I am choosing to do this through monism, the idea that there is only one ultimate constituent of reality. Insofar as I am correct, that is to say if reality can be wholly explained with just the existence of one type of entity, this would be considered efficient according to Ockham's' Razor. Furthermore, this is a monism via logical reduction. According to

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[2] A type of entity generally refers to its ontological type. Some examples are physical things, abstract things, God etc.…

[3] Russell, B. (n.d.). The Relation of Sense-Data to Physics. In *Mysticism and Logic and Other Essays* (pp. 155-156). George Allen and Unwin.

Russell, logical reductions should be treated as ontological reductions. Because, insofar as the logical reductions are valid, they can be an explanation of reality. So, the type of efficiency I am looking for is efficiency of types of entity and efficiency of constructions of entities. In other words, how can I use the least number of entities to logically explain reality. From there, we can apply that efficiency to ontology.

A natural reaction to this from someone not previously invested in philosophy might be, "Why does this matter? What does the problem of ontology have to do with my life? I do not need a solution to the problem of ontology because the problem of ontology has caused no suffering, discomfort, anxiety, death, etc. in my life." To this I would reply, everything in your life has ontological presuppositions. For example, if you are theist, you probably believe in a God that is unlike physical things and unlike abstract things. Which means, there is a different type of entity, possibly in addition to others that you believe in, that Ockham says must be necessary. Your beliefs in God, and therefore religion, are beholden to ontology. Engaging with the problem of Ontology is engaging with your everyday beliefs. And, as a result the problem of ontology can force you to reevaluate beliefs you may have considered mundane or unproblematic previously. The problem of ontology matters because insofar as you do not want to be deceived or incorrect in your daily beliefs, you must tackle the presuppositions of those beliefs, which is the problem of ontology.

Addressing the Weird Factor

Questions of ontology and ontologies that deny the conventional nature of physical objects can seem very strange. So, before arguing for my ontology I would like

to discuss the strangeness of such beliefs. I intend to show that there are many incredibly intelligent historical figures that have held abstract views of reality. Furthermore, I will argue that no matter how strange a view, the strangeness does not dictate the truth value of the argument. And, finally I would like to explain the difference between pragmatic living and ontological questioning.

To those who have never studied ontology, it may seem strange and a little fanatical to think or even care that reality is not physical, but rather abstract. But, I assure you I am in good company. Plato, for example, thinks that abstract forms are the ultimate things of our reality. And, that physical objects are just kinds of representations of their abstract counterparts. Spinoza believed that reality was really just a part of God's mind. And, therefore, everything we see in the world around us is not actually physical but part of God. The reason I bring this up is to show that ontologies that fundamentally deny the existence of physical things or posit non-physical things as the ultimate pieces of reality have a prestigious history. That is not to say that Plato, Spinoza, and I have similar views, but rather that abstract ontologies have a prestigious and intelligent history. It may be strange, but views like mine have been well-argued and well-received historically.

It is also important to note that however strange a view is, the truth value of that view is not affected by the strangeness. I do not think my views are strange in particular. But, if you disregard the academic past and reasonable conclusions that philosophers of the past have, you still might be inclined to say that my view is strange. But regardless of how strange you may think my view is, it still stands on its logical consistency. It seems to me to be a circularity to assume that an argument is invalid based on its strangeness. If one were to say, "This argument is incredibly weird. Therefore, I will not believe it."

They would be using their conclusions about reality to make a statement about the way in which reality is. So, I would encourage the reader to take my arguments at their reasonable value rather than any manufactured value based on the strangeness of my idea.

Additionally, there is no need to pragmatically apply this view to your everyday life. I am not treating or thinking of the computer I am typing this on as anything different than the physical object I perceive it as. There is a separation between living my everyday life and writing a philosophical paper. I can truly believe that the foundations of our world are abstract while practically living as if physical things are as they seem. The way in which I perceive the world and the way in which things are are allowed to be different. I am placing no moral worth on living as if things are not what they seem. For example, it is perfectly reasonable to believe that a brick wall is reducible to abstracta all the while not wanting to walk into it for fear of hurting my head.

Defining Abstracta

To begin discussing the abstract ontology itself, it is important that we first define abstracta. In the following section, I will discuss three definitions relating to abstracta and concretum, explain the importance of a positive definition of abstracta, discuss why I will be using the criteria I am using, and discuss the criteria for abstractness that I am using in the context of the other views discussed.

The first definition I will be discussing comes from *The Subtraction Argument for Metaphysical Nihilism.* The criteria for concreteness as stated by Efrid and Stoneham are, a). concrete objects must exist at locations in spacetime, and b). These concrete objects must have intrinsic qualities. In other words, in order for an object to be physical

it has extension in space and properties that come from the nature of the thing itself.[4] For example, a brick is located spatiotemporally and has the property of being rough in texture. So, according to Efrid and Stoneham, the brick is physical. It is important to note, that Efrid and Stoneham do not say that the absence of a location in spacetime and extrinsic properties make something abstract. This a definition purely concerned with concrete objects.

Nelson Goodman writes that changes in appearance are not changes in matter necessarily. Concrete objects persist through changes in time and appearance. The actual properties of concrete things are different from the appearance of concrete things. And, in being different, the properties of concrete objects are not affected by how we perceive them. He defines a concrete object as one that can be exhaustively broken into concrete parts. For example, a car can be broken down into smaller and smaller concrete parts until all of its atoms are accounted for. And, Abstracta are things with no concrete parts. Goodman makes room for objects that are neither concrete nor abstract, however. He states that one example would be the sum of a concretum and a color it does not contain. This is very vague as Goodman only has one small paragraph describing one example. I interpret it as, all of the instances of a certain physical object and a color that those instances do not contain. I have a hard time listing an example of this and Goodman seems to as well as he has not provided any. The closest thing to an example I can think of is all of the instances of stoplights and the color pink. Stoplights are concrete things, but instances of pink colored stoplights do not exist. With that being said, a pink stoplight

[4] Efird, David, and Tom Stoneham. "The Subtraction Argument for Metaphysical Nihilism." *Journal of Philosophy* 102, no. 6 (2005): 303–25. https://doi.org/10.5840/jphil2005102614.

could easily be created. It just seems to be a non-existent but logically consistent physical thing. Additionally, Goodman brings up the issue of chains of primitive predicates. If we say that, object 'A' is lumpy and round; object 'B' is smooth and round; and Object 'C' is smooth and square. We can create a set based on similar properties where 'A' and 'C' have no relation. If it is the case that entities in the same sets can have no similar properties, then sets cannot be organized based on properties. This poses a problem for the epistemology of set theory. If a set, which is commonly viewed as abstract, can contain things with no related properties while being organized by properties, can they serve as the building blocks for ontology?[5]

David Lewis also writes on the distinction between abstract and concrete. He states that abstract and concrete entities are certainly different. And, listing examples of concrete objects and abstracta do nothing to help us discover what they are. He states, to some extent, his modal realist versions of possible worlds are at least partly concrete because objects in one possible world have exact duplicates in others. He then gives us three possible ways to look at the concrete/abstract distinction. 1). Concrete things are things like bricks while abstract things are things like numbers. 2). The distinction between concrete and abstract is just the distinction between particulars and universals. 3). Abstract entities are not spatiotemporally located and cannot enter causal relationships.[6]

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[5] Goodman, N. (1977). Concreta and Qualification. In *The Structure of Appearance* (pp. 156-177). Boston, USA: D. Reidel Publishing Company.

[6] Lewis, D. K. (1986). Concreteness. In *On the Plurality of Worlds* (pp. 81-86). Oxford: Oxford: Blackwell.

If it were the case that there were only concrete and abstract things, we could just use a contradictory definition of a concrete object. But, Goodman points out that there seem to be logically consistent things that are neither concrete or abstract. So, because a negative definition of concretum would be nebulous as to whether it referred to abstract entities, entities that are neither abstract or concrete, or neither, we must have a positive definition of abstracta. This is why the definition from Efrid and Stoneham is not suitable for my position. That is not to say that I necessarily disagree with their definition, but it is unusable in my argument. Additionally, I do not think that any of Lewis' definitions will be satisfactory either. 'Things like numbers' and 'universals' are more so examples of abstracta rather than positive definitions. And, my argument requires that abstracta be able to enter causal relationships.

Goodman, on the other hand, gives a positive definition of abstracta. He states that things that do not have physical parts are abstract.[7] So for any object, if it cannot be broken into concrete parts, it is abstract. This gives us a good detection device for abstract entities. We can take the number 4 for example. Then, I can ask, could we theoretically create a list off all of the atoms that compose the number 4? If it is the case that we cannot, then the number 4 has no physical parts. And, it is therefore abstract. A piece of gold, on the other hand, would be concrete because we could theoretically list all of the physical components that compose it. In short, there are three options, things are abstract, physical, or neither. And, for anything that cannot be broken down into comprehensive physical parts, it is abstract.

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[7] Goodman, N. (1977). Concreta and Qualification. In *The Structure of Appearance* (pp. 156-177). Boston, USA: D. Reidel Publishing Company.

Just because I am committed to Goodman's definition, however, does not mean that the other definitions necessarily somehow contradict my position. The Efrid and Stoneham definition for example, states that physical things have extension and intrinsic properties. Goodman states that physical things can be broken down completely into their physical parts. These two definitions do not contradict. Furthermore, nothing about stating that abstract entities have no physical parts contradicts the position that physical things have extension and intrinsic properties.

Concerning Lewis' examples, saying that concretum are like bricks while abstracta are like numbers fits perfectly into Goodman's definition because those examples either can or cannot be broken down into their physical parts respectively. Next, to say that the abstract/concrete distinction is equivalent to the particular/universal distinction is to say that in the same way that particulars share in being a part of universals, concrete objects share in being a part of abstracta.

But, Lewis does include a view in his definitions that may be problematic. If we were to hold that abstracta cannot be causal, then abstracta cannot function as inputs in our function. Inputs cause changes in states which lead to events in machine-state functionalism. If I am to use this function in my ontology, I need abstracta to be in the causal order of things. But, let us assume that they are not for the sake of the argument. If we take a modal proposition like, "imagine a possible world where coffee tastes like roses," that modal proposition itself cannot be broken into physical parts. By Goodman's definition, the proposition itself is abstract. And, if you accept that proposition, you must accept other propositions too. For example, in accepting that we can imagine a possible world where coffee tastes like roses, you must also accept that we can imagine a possible

world where coffee and roses exist. In some sense this abstract proposition has caused you to accept, or made you realize that you must accept other propositions. Therefore, to some extent, abstracta must be causally interactive. More logically, If it is an abstract entity, then it is not causal. Modal propositions themselves cannot be broken into physical parts. Things that cannot be broken into physical parts are abstract. Therefore, modal propositions are abstract. I can think of a modal proposition, so it is an abstract thing. If it is an abstract thing, then that modal proposition cannot be causal. But, if a modal thing is abstract then it must be causal due to the acceptance of that proposition causing an acceptance of other propositions. Therefore, according to Lewis' third interpretation of abstract entities, they must be causal and not causal at the same time and in the same respect.

1. $\sim(E \rightarrow C)$ A
2. $M \rightarrow \sim P$ A
3. $\sim P \rightarrow E$ A
4. $(M \rightarrow E) \rightarrow (E \rightarrow C)$ A
5. $M \rightarrow E$ 2,3 HS
6. $E \rightarrow C$ 4,5 MPP

┐ $\sim(E \rightarrow C) \ \& \ (E \rightarrow C)$ 1,6 RAA

The above symbolic logic works out to be the following series of statements: It is not the case that if a thing is an abstract entity then it is causal. If a thing is a modal proposition, then it does not have physical parts. If a thing does not have physical parts, then it is an abstract entity. If it is the case that if it is a modal proposition then it is an

abstract entity, then if it is an abstract entity it is causal. If it is a modal proposition, then it is an abstract entity. If it is an abstract entity, then it is causal. Therefore, if we assume the first proposition, it is the case that abstract entities must be both causal and not causal at the same time and in the same respect.

Functionalism

For the purposes of this thesis, I will be using a form of functionalism closest to machine functionalism (or machine-state functionalism.) I am not necessarily a functionalist in the same sense that Machine functionalists are functionalists. I agree with their idea of what a function is, however, I think machine functionalism should not be restricted to philosophy of mind. Instead, I argue that it has uses in metaphysics and ontology. So, I will explain machine functionalism, provide an example, address a critique that might arise from my using this function, and explain how the application of this function on ontology and the original view of machine functionalism are compatible.

Essentially, the machine functionalist compares mental states to that of an instantiated computer program. That is to say, for any brain state that exists there is a logical function that defines it similar to how a computer program can be defined as a series of states, inputs, and outputs. For example, a computer can be in an initial state, $state_a$. Then, $input_b$ changes $state_a$ into $state_c$. And, as a result of a change in states because of $input_b$, $Output_d$ occurs. This is called a Turing machine. For example, my computer can be resting on the home screen. Then I give an input of hitting shift five times. This changes the state of my computer to one where sticky keys is enabled. And, as a result of

the state change to enabled sticky keys, as a result of my inputs, my computer outputs a noise.

In terms of philosophy of mind, say I am walking peacefully in a park. Up the trail, I see someone throw their cigarette butt into the grass. This annoys me for a variety of different reasons. It is bad for the grass, it could cause a fire, and the pollution will lower the property value of my nearby house. And, in my annoyed state I yell at the litterer to pick their trash up. Here, $state_a$ is my peacefulness walking through the park. $Input_b$ is the person throwing their cigarette butt into the grass. $State_c$ is my new annoyed state as a result of the littering. Finally, $output_d$ is my yelling at the litterer. This is the machine functionalist account of brain states. They argue that a complete account of the mind can be given in terms of a Turing machine. Furthermore, the Turing machine explanation of the mind is able to refer to mental states in an entirely physical way allowing the machine-state functionalist to posit mental states as physical things. This is significant for the ontological reason listed above. The machine functionalism is able to explain reality without the need for a mental type of thing, making their ontology more efficient.[8]

One might reply to this, "You are arguing for an abstract ontology. Machine state functionalism is usually physicalist. You cannot believe in machine state functionalism

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[8] Guttenplan, Samuel. "Functionalism (1)." In *A Companion to the Philosophy of Mind*, 318–19. Oxford: Blackwell, 2004; Putnam, H. (1960). Dimensions of mind A Symposium; Proceedings of the 3rd annual New York University Inst. of philosophy. In 1270513472 938452983 S. Hook (Author), *Dimensions of mind a symposium; proceedings of the 3rd annual New York University Inst. of Philosophy* (pp. 20-33). New York, NY: N.Y. Univ. Pr.

and an abstract ontology at the same time." To that I would reply that I do not necessarily need to believe machine state functionalism to be true. I believe the function to be useful in reducing things into abstracta. Both the machine functionalist and I believe that the function is useful in reduction. But, I place the function at an earlier place in ontology than they do. Both my ontology and machine state functionalism seek to answer a question. I am looking to posit what exists. The machine state functionalist looks to posit how something exists. For this reason, taking the function out of functionalism and applying it to ontology does not commit me to this version of functionalism. This is because I am answering a question in a way that is presuppositional to machine state functionalism.

And, finally, I absolutely can believe in machine state functionalism. Let us assume that the machine-state functionalist is correct. They believe that mental things reduce to physical things. I believe that physical things reduce to abstract things. There is no contradiction here. In fact, if mental things reduce to physical things and physical things reduce to abstract things, then mental things reduce to abstract things. If anything, machine-state functionalism helps my ontology reduce not only physical things, but mental things too. This can be done in the form of a valid syllogism. If mental things can be entirely explained in physical terms, then they can be reduced to physical things. If physical things can be entirely explained in abstract terms, then they can be reduced to abstract things. Therefore, if mental things can be entirely explained in physical terms, they can be reduced to abstracta.

1. $M \rightarrow P$ A
2. $P \rightarrow A$ A

┐ M → A 1,2 HS

Placing Abstracta into the Functional Variables

It has been established that I believe a function can reduce physical things to abstracta. And, that function consists of states, inputs, and outputs. So, how do the states, inputs, and outputs apply to an abstract ontology? In other words, how do we assign the functional variables to an abstract ontology? Each individual variable from machine functionalism must be applied to something in an abstract ontology. And, with all the variables in their place, we must be able to perform reductions on objects.

The abstracta are the inputs in this system. A change in input causes a change state. Likewise, a change in abstracta will change an object in this system. This means that a state is an object state. More specifically, the object state is all of the properties of an object at one point in time. It is analogous to the original mental state of peace and the resulting mental state of frustration in my above example. The object state is influenced by the different abstracta acting in the function. And, in machine state functionalism, outputs are events caused by a change of state where that change of state is caused by a change in input. It is the same here. Real-world events are a result of state changes due to changes of abstracta.

First, I will reduce a sub-atomic particle. Take a quark, for example, with this function I can provide a full story of that quark. That is to say, to describe that quark logically or ontologically, other physical things are not required. A quark can be in be in any initial state. And, via the strong nuclear force the quark can interact with other particles. That quark may bond with other quarks via the strong nuclear force. And, as a

result, a more familiar subatomic particle like an electron is formed. It is important to note here that the strong nuclear force itself cannot be reduced into a comprehensive list of its parts. Therefore, it is abstract. Furthermore, we have a function involving this quark that is analogous to machine functionalism. But, this function has its origins in abstracta. The quark has an initial state, $state_a$. Then, the strong nuclear force, $Input_b$ causes a state change. We now have a quark that is binding to other particles, $state_c$. As a result of this state change, and electron is created, $event_d$. Finally, this characterizes the quark in terms of abstract inputs. There is an abstract that disposes a quark to act in a certain way. Quarks can be discussed without the need for physical inputs or language.

One might reply to this, in one of two ways. First, "How do you know that the strong nuclear force is not a result of some smaller, physical particle? It seems entirely possible that this reaction could be physical." To that I would reply, the same function would be applicable to the smaller particle, and particles smaller than that, until the either the smallest, irreducible particle was found, or you would be forced to admit that physical things are infinitely regressive. Second, "You agreed earlier that physical things are things that can be comprehensively broken down into their parts. A quark is the smallest irreducible particle. So, they cannot be an example of a physical thing in your system. This means that your example does not show that a physical thing is an instantiation of a machine." To this I would reply, Goodman's definition is just *a* definition. It never claims to be something like the monad of a quark. The quark still has things like mass and conductivity. Goodman' definition is something that guarantees that an object is physical, not something that encompasses all physical objects.

Next, the same reduction can be preformed on a macroscopic object. Take the statue David, for example. Goodman's definition of concrete objects immediately allows me to reduce David into all of the quarks composing him because a concrete object is one that can be comprehensively broken down into its physical parts. From here the same reduction from above can be used to reduce the subatomic particles composing David into abstracta. For any one quark in the statue David I can say the following: When said quark changes from an initial state to a new state, causing a new event to happen, the process can be described completely in terms of abstract inputs making not only the quark(s) but also David an instantiation of a Turing machine originating in abstracta. Therefore, David is also reducible to abstracta.

A mental reduction is a bit more complicated. Initially, it may not seem like a mental state has any physical pieces and is, therefore, abstract. But, if it is the case that mental states are reducible to physical things, then those physical things must further be reduced to abstracta. Take my earlier example. I am peacefully walking down the street when I see someone litter. Seeing someone litter upsets me. And, as a result I yell at the litterer. This is a mental state of frustration according to the machine-state functionalist. And, that mental state is physically reduced. Therefore, each physical piece of that mental state, my brain, the cigarette butt thrown on the ground, the person littering, etc. can then be reduced to the individual quarks composing them. From there, just like my first reduction, each individual quark can be reduced to an abstracta. After the mental has been reduced to the physical, the physical, cigarette butts, my brain, etc., can be reduced to quarks and described in terms of abstracta just like the statue David.

Finally, Goodman posits logically consistent entities that are neither physical nor abstract. Again, these are tricky because Goodman does not go into great detail about them. However, in so far as they are true, these must be reduced as well. Goodman does say that these entities can involve all of the instances of a concretum. So, regardless of containing whatever color, these instances have physical pieces. Therefore, each object of the instance can be broken down into quarks with the same reduction applied from any earlier example.

Whither Physical Objects

Quine seems to be of a similar state of mind in his essay *Whither Physical Objects*. He states that the only tenable version of a region in space-time is a four-dimensional one. Or, a region of space-time that can be located by four numbered coordinates, presumably three spatial coordinates and one temporal one. And, that objects do not take up these regions in space-time but are, in fact, the regions of spacetime themselves.[9]

As a result, Quine states that sooner or later we must be forced to introduce things like numbers into our ontology. These numbers account for the varying degrees of motion, temperature, etc. that our physical objects can be in. In other words, to describe the average temperature of the human body as 98.6 degrees Fahrenheit, we must first have numbers as an accepted entity in our ontology. And, we have four-dimensional

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[9] Quine, W. (1976). Whither Physical Objects? In 1274612785 941041098 R. S. Cohen, 1274612786 941041098 P. Feyerabend, & 1274612787 941041098 M. W. Wartofsky (Authors), *Essays in memory of Imre Lakatos* (pp. 497-504). Dordrecht: Reidel.

coordinates to describe the location of every point in a region of spacetime. So, numbers can completely describe a physical objects location and state of being. Physical objects are reduced to mathematics and abstracta entities. And, mathematics and abstract entities are further reduced to set theory.[10]

I believe this to be similar because both Quine and I have a picture of physical objects that dissolve into the abstract components that describe or compose them. Quine might even be using a similar methodology here. He discusses state changes of objects as a result of his abstract entities in a similar way to how machine functionalism poses state changes due to inputs. The biggest difference here is that Quine finds no comfort in the volatility of sub-atomic particles. He believes that it is problematic to view volatile particles as changes in state as it is hard to say whether an electron or quark persists over time.

Ockham's Razor

To evaluate a view like this we must use the tools I mentioned earlier. First, I would like to clarify the difference between properties and entities. Next, I will evaluate the parsimony of my view using Ockham's and Russell's razors. Finally, I will discuss the merits on monism is Ockham's razor.

The overarching goal of this paper is to explain as much as possible with as little types of entities as possible. With that being said, Physical things still have physical properties in my system. A house, even though it is reducible to abstracta, still has

[10] Ibid, 497-504

extension in a way that a singular abstracta does not. It is important for me to say that properties do not equal entities. Just because something may retain physical properties does not mean that it is irreducible to abstract entities. In traditional machine-state functionalism, properties of the mind like remembering and thinking are still mental properties, but mental states are physical things. This carries over to my reductions. Physical things can have properties like extension while still being abstract things. Nothing about the retention of properties affects the reduction of objects.

The maxim, 'Do not multiply types of entities beyond necessity.' is the driving rule behind this project. It is the rubric by which my paper can be considered successful. With that being said, how did I do? We began by accepting that there are three types of entities, concrete objects, abstracta, and entities that are neither concrete nor abstract. And, entities that are concrete and entities that are neither concrete nor abstract are analogous to an instantiated Turing machine originating in abstracta. Therefore, they can be reduced to abstracta. Additionally, if one were to assume that mental states were their own entities, those too can be reduced to abstracta via being first reduced to physical things. We are, therefore, left with only one type of entity, abstracta. This is a very beneficial place to be in ontologically. Because, if I can explain everything only using one type of entity, then my view is inherently more efficient than an ontology that requires more entities. And, the more efficient a view the more likely it is correct.

A critic might reply, "How do you know that you have all of your types of entities accounted for? Couldn't there be something outside of the entities listed?" To that I would reply that it seems like Goodman's list of entity types is exhaustive. The proposition, 'There are entities that are neither concrete nor abstract.' does not

necessarily only refer to one type of entity. It refers to everything in number and type that is neither concrete nor abstract. Therefore, abstract, concrete, and neither/nor is complete in its account of types of entities. Goodman only posits one type of logically consistent entity that is neither abstract nor concrete. And, that type of entity can be accounted for in my system. With that being said, a logically consistent type of entity that is different from Goodman's example may serve as a counterexample.

Furthermore, Russel's version of Ockham's razor essentially states that given a lack of sufficient evidence, no entity should be inferred. And, in taking my functionalist approach to Ontology I have demonstrated the lack of sufficient evidence for entities that are not abstract. In other words, the reduction of things to abstracta demonstrates a lack of sufficient evidence that those things have a fundamental place in our reality. And, as a result, our ontologies should not accept those things as fundamental.

Flaws, and Replies

This view may not be without complications, however. I would like to discuss a potential flaw in my ontology and provide a reply attempting to ameliorate it. The potential problem stems from set theory and the potential of the abstract entities in my system to further reduce to sets.

If it is the case that the abstracta in my system are further reducible to sets, then my overarching claim that the ultimate constituents of reality are abstract is unaffected. Sets themselves are also abstract. Therefore, if it is the case that abstracta in my system are further reducible to sets, the ultimate constituents of reality are still abstract. With that being set, set theory may make this ontological functionalism superfluous. If it is the case

that my ontology can ultimately be reduced to sets without the use of my function, then the function seems useless, and I am ultimately just a hyper-Pythagorean.

If it is the case that physical objects can be more efficiently reduced to sets, then the function by which I claim things are reduced would be useless for reductive purposes. But, the claim that physical things are instances of Turing machines originating in abstract would still be true. And, this claim is significant whether or not the function is proper for ontological reductions. From the claim that physical things are instantiations of Turing machines I could claim that the reduction to abstracta is a logical implication. But, I could not claim that the ontological function itself is what reduces physical things to abstracta.

If you will recall, however, in Goodman's system sets are unreliable abstracta to serve as building blocks. We can construct a set based on the properties of objects in which some members of the set do not have similar properties. In other words, if we accept that sets are the fundamental things of reality, it is possible for a set to be organized based on properties and not based on properties at the same time and in the same respect.

Logical Implications

I have already discussed that some may find this view strange. And, that the strangeness is not a flaw. Below, I will discuss a strange logical implication of this view. In doing so, I intend to be as honest as possible with the results of my ontology.

A strange implication of this view is that quarks seem to be the only physical things. Everything else that we would consider physical is just a physical event as a result of state changes in quarks. That means I, as a person, am not really a physical thing in the same way that a quark is considered physical. I am not saying here that quarks are a fundamental entity in reality, but rather that they are the only things that can be considered physical in a traditional common-sense version of the word. And, if not quarks, then the smallest particle that composes physical things are. Something like a dog, is instead a physical event caused by changes in atoms.

Furthermore, quarks are reducible to abstracta. Therefore, since I am a composition of quarks, and those quarks are a composition of abstracta, I just seem to be an abstract state-of-affairs. By this, I mean that I am the way in which certain abstracta are currently acting. The things composed of quarks just seem to be events because of the quarks while those same quarks are reducible to abstracta. Therefore, I am an instantiated event of abstracta.

Conclusion

The questions and methods for evaluation in ontology support an idea that abstracta are the fundamental substance of reality. That is to say, that when I use a machine-state function to show that physical objects, mental states, and objects that are neither abstract nor physical are instances of a Turing machine originating in abstracta, I show that the function also reduces those things to abstracta. I am left with a streamlined view of reality.

Through explaining the question of ontology, defending ‘strange’ views of reality, discussing and defining abstracta, explaining machine functionalism and how its variables fit into abstracta, reducing physical objects to abstracta, and applying Ockham’s and Russell’s razors, I believe I have created an ontology that is successful in its efficiency and valid in its structure.

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