

## WHAT ARE PHYSICAL OBJECTS?

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**Abstract:** The concept of a physical object has figured prominently in the history of philosophy, and is probably more important now than it has ever been before. Yet the question *What are physical objects?*, i.e., *What is the correct analysis of the concept of a physical object?*, has received surprisingly little attention. The purpose of this paper is to address this question. I consider several attempts at answering the question, and give my reasons for preferring one of them over its rivals. The account of physical objects that I recommend – the Spatial Location Account – defines physical objects as objects with spatial locations. The intuitive idea behind the Spatial Location Account is this. Objects from all of the different ontological categories – physical objects; non-physical objects like souls, if there are any; propositions; universals; etc. – have this much in common: they all exist *in time*. But not all of them exist *in space*. The ones that exist in time and space, i.e., the ones that have spatial locations, are the ones that count as physical objects.

### 1 Introduction

The topic of this paper is a concept that has figured prominently in the history of philosophy, and is probably more important now than it has ever been before. It plays a crucial role in contemporary discussions of the nature of people, the nature of mental phenomena, and ontological theses like materialism (the thesis that only physical objects exist) and physicalism (the thesis that everything that exists is just what a true and complete physics would say exists). In addition, the vast majority of living philosophers begin their ontologies with a category for objects that fall under this concept. I refer, of course, to the concept of a physical object.

Despite its obvious importance in philosophical discussions, the concept of a physical object has received surprisingly little attention. In particular, the question *What are physical objects?*, i.e., *What is the correct analysis of the concept*

*of a physical object?*, has been all but ignored by most philosophers.<sup>1</sup> The purpose of this paper is to address this question. In what follows, I will consider several attempts at answering the question, and give my reasons for preferring one of them over its rivals.<sup>2</sup> The account of physical objects that I will recommend is one that simply defines physical objects as objects with spatial locations.

## 2 Physicality and Objecthood

One question that naturally arises in an investigation into the nature of physical objects is this: What are objects? In what follows I will use the word 'object' in the broadest possible sense – as synonymous with 'entity' and 'thing' – so that each and every thing is an object. On this usage, physical objects (whatever they turn out to be) will count as objects, as will numbers, sets, universals, propositions, possible worlds, events, facts, minds, and souls (if there are entities of these kinds, that is). Given this way of understanding the word 'object', our investigation into the nature of physical objects will be

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<sup>1</sup> There have been important exceptions to this rule, some of which will be discussed below. And there has been a great deal of discussion in the literature of questions like *What is physicalism?*, *What is materialism?*, *What is physical materialism?*, *What is the mental-physical supervenience thesis?*, etc. But in most cases, it is clear that the philosophers who discuss these questions do not mean to be offering an analysis of the concept of a physical object; for they make use of terms like 'physical' and 'material' in their explications of the relevant theses. See, for example, Tim Crane and D.H. Mellor, "There Is No Question of Physicalism;" Chris Daly, "Does Physicalism Need Fixing?" John Dupre, *The Disorder of Things: Metaphysical Foundations of the Disunity of Science*; Terence Horgan, "Supervenience and Microphysics" and "Supervenience and Cosmic Hermeneutics;" Jaegwon Kim, "Psychophysical Supervenience" and "Concepts of Supervenience;" David Lewis, "New Work for a Theory of Universals;" and Philip Pettit, "A Definition of Physicalism."

<sup>2</sup> Some people may worry that it is a mistake to assume that the same concept is relevant to different philosophical discussions featuring the expression 'physical object'. I am sympathetic to this worry, but I think that, at the very least, we should want there to be one main concept of the physical that features in an important subset of philosophical discussions of physical objects. I say more about this issue in Section 9 below.

an inquiry into the nature of physicality, rather than an inquiry into the nature of objecthood.<sup>3</sup>

### 3 The Spatial Location Account of Physical Objects

Hobbes said that “a body is that, which having no dependence on our thought, is coincident or coextended with some part of space.”<sup>4</sup> If I understand Hobbes correctly then the analysis of the concept of a physical object that I want to recommend is his. For on my view, the best account of physical objects is this: a physical object is an object with a spatial location. I’ll call this view the Spatial Location Account of Physical Objects.<sup>5</sup>

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<sup>3</sup> I will have more to say in Section 9 below about some of these other putative kinds of object.

<sup>4</sup> *De Corpore*, 2.8.1. Hobbes may have intended *mind-independence* to be a part of his definition of ‘physical object’. If so then I am not endorsing that part of Hobbes’s analysis. (But I happen to think that there is an excellent reason *not* to interpret Hobbes as defining physical objects as mind-independent objects with spatial locations. After all, there are surely some mind-independent objects that are not physical (such as the number 2 and the proposition that  $2 + 2 = 4$ ), so that being mind-independent cannot be a sufficient condition for being physical, even if it is a necessary condition. And it seems obvious that no object with a spatial location is dependent on our thought. So if being mind-independent and being spatially located are necessary and jointly sufficient conditions for being physical, then having a spatial location will itself be a necessary and sufficient condition for being physical.)

Richard Cartwright quotes Hobbes in his paper “Scattered Objects,” where he says “Bodies in Hobbes’s sense are material objects in ours; so at any rate I shall assume.” But Cartwright seems to have at least some doubts about whether Hobbes’s definition is wholly correct, for he goes on to say “And I shall assume that his definition is correct at least in its implication that coincidence with some part of space is required of anything that is to count as a material object.” See “Scattered Objects,” p. 171.

<sup>5</sup> Hobbes and I are, naturally enough, not the only philosophers who have endorsed roughly this account of physical objects. See, for example, Hoffman and Rosenkrantz, *Substance Among Other Categories*, Chapters 1 and 5; and Charles, “Supervenience, Composition, and Physicalism.” But as far as I know, no other philosopher has given arguments for this account of physical objects over its rivals.

The intuitive idea behind the Spatial Location Account is this. Objects from all of the different ontological categories – physical objects; non-physical objects like souls, if there are any; propositions; universals; etc. – have this much in common: they all exist *in time*. But not all of them exist *in space*. The ones that exist in space, i.e., the ones that have spatial locations, are the ones that count as physical objects. Thus souls, if there are any, are objects with temporal locations but without spatial locations. They might interact with objects in space, like our bodies, but even when they do so, they are not themselves located in space. And if it turns out that a living person is a composite object, with one physical (i.e., spatially located) part and one non-physical (i.e., not spatially located) part, then the Spatial Location Account will entail that living people are partly physical and partly non-physical.<sup>6</sup>

The Spatial Location Account of Physical Objects should not be confused with another view about physical objects that also makes reference to space. This is the view that physical objects are objects with spatial *extensions*. The Spatial Extension Account of Physical Objects rules out the possibility of “point-sized” physical objects, such as quarks, but the Spatial Location Account does not. Some people, who don’t want to count quarks as physical objects, might see this as a disadvantage of the Spatial Location Account, but I see it as an advantage. I will say a little bit more about quarks, and why I think they should count as physical objects, below. But first, let’s consider some alternative accounts of physical objects.

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I should note here that, as I am understanding the Spatial Location Account, it is to a certain extent meant to be a *prescriptive* rather than a *descriptive* proposal. I will have more to say about this aspect of the proposal in Section 9 below.

<sup>6</sup> Thus it is a consequence of the Spatial Location Account (as it should be a consequence of any adequate account of physical objects) that a composite object with a physical part and a non-physical part would count as partly physical and partly non-physical. I’m grateful to an anonymous referee for raising the question of what the Spatial Location Account says about a composite object with a part that is spatially located and another part that is not.

#### 4 The Physical Theory Account of Physical Objects

One natural response to the question *What are physical objects?* is simply that physical objects are the objects studied by physics.<sup>7</sup> I will call this the Physical Theory Account of Physical Objects. One main problem with the Physical Theory Account is that it seems likely to lead to circularity, since it's natural to want to define physics as the study of physical objects and the laws of nature governing them.<sup>8</sup> In fact, I am inclined to say that the expressions 'physical object' and 'physics' are best understood as being interdefinable. If we knew what either one meant, then we would know what the other means too; but I don't think we can get a really informative definition of either one in terms of the other. In any case, in the absence of an independent account of what physics is, the Physical Theory Account cannot provide an adequate answer to the question of what physical objects are. And I do not know of any such account that is available to the proponent of the Physical Theory Account.<sup>9</sup> So

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<sup>7</sup> J.J.C. Smart may have had something like this view in mind. See, for example, *Our Place in the Universe*, p. 79. Meanwhile, various other philosophers have explicitly endorsed this view. See, for example, Donald Davidson, *Essays on Actions and Events*; Mark Johnston, "Why Having a Mind Matters;" Carl Hempel, "Reduction: Ontological and Linguistic Facets;" Geoffrey Hellman and Frank Thompson, "Physicalism: Ontology, Determination and Reductionism" and "Physicalist Materialism;" John Post, *The Faces of Existence*; Jeffrey Poland, *Physicalism: The Philosophical Foundations* and Dalia Drai, "What is a Physical Event?"

<sup>8</sup> It might be objected that this is a defective definition of 'physics', since many other fields – biology, for example – also involve the study physical objects. But I would reply that this is no problem for the definition, since we can say that biology is the study of *living things*, some or all of which also happen to be physical. Thus all the objection shows is that certain other fields, including biology, overlap with physics.

<sup>9</sup> We can't say, for example, that physics is the study of forces, fields, atoms, electrons, quarks, etc. For it might not have been. I.e., the correct physical theory describing our world might not have mentioned any of these phenomena. Nor can we say, for the purpose of articulating the Physical Theory Account as an alternative to the Spatial Location Account, that physics is the study of objects in spacetime (as Jeffrey Poland says in his *Physicalism: The Philosophical Foundations* (see p. 124)).

John Post proposes an interesting variation on the Physical Theory Account in his *The Faces of Existence* (see pp. 121ff.). Post says, roughly, that x is a physical object iff either x satisfies some predicate on a suitable list drawn from current physics, or x is

it seems to me that the Physical Theory Account fails as an answer to our question.

In addition to this main problem facing the Physical Theory Account, there are several other objections that can be raised against that account. Here's one. Various abstract objects, like numbers, equations, and functions, not to mention other more obscure mathematical entities, are studied by physics. So the Physical theory Account seems to entail that these objects should count as physical objects. But they shouldn't.

Another problem facing the Physical Theory Account is that it could turn out that the best physical theory posits certain theoretical entities ("the gods," for example) that do not have spatial locations or any of the other properties normally associated with physical objects, but whose behavior somehow determines the behavior of certain quarks, say. According to the Physical Theory Account, these would count as physical objects; but it seems pretty clear that they shouldn't.

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composed of some objects, each of which satisfies some predicate on such a list. I think that Post's approach won't work, however, for several reasons. For one thing, being physical will be an extrinsic property of the things that possess it, on this approach. Thus, an object might change over time from being non-physical to being physical, despite the fact that it does not change in any intrinsic way during the relevant time. For another thing, this proposal entails that the very concept of a physical object changes over time, so that which proposition is expressed by a sentence like 'Only physical objects exist' will change over time. For a third thing, it might well turn out, on Post's proposal, that nothing – not even the chair I am sitting on – is a physical object right now. For it might turn out that there is some as-yet-undetected incoherence in the current list of predicates, or that the physicists are simply mistaken about the characteristics of the objects we think are physical. And finally, Post's proposal suffers from the general problem of a lack of an accompanying account of what physics is.

For further attempts to give an independent account of physics that is suitable for use with the Physical Theory Account, see, especially, the works by Hempel, Putnam, Drai, Hellman, Post, and Poland cited in note 7 above.

## 5 The Sensational Account of Physical Objects

Another natural way of answering the question *What are physical objects?* is to say that physical objects are the objects that can be sensed.<sup>10</sup> But on the face of it there is a grave difficulty with this view: what can be sensed varies from subject to subject. Thus it appears that, on the Sensational Account, the concept of a physical object will turn out to be a relativistic one; a given object might be a physical object relative to a certain dog, say, but a non-physical object relative to a particular human. This kind of result seems undesirable, especially considering the crucial role that the concept of a physical object plays in philosophical controversies.

The Sensational Account can perhaps get around this objection if we understand it to say that physical objects are objects that can be sensed by some sentient being or other. But the view will still face grave difficulties. It's not at all clear which objects can be sensed and which cannot. Many dualists believe, for example, that a mind can sense itself by using the faculty of "inner sense" – and yet we do not want minds to count as physical objects. This difficulty could perhaps be gotten around by formulating the Sensational Account so that it says that physical objects are objects that can be sensed by two or more subjects.<sup>11</sup> But there would still be problems even for this version of the Sensational Account. For one thing, many dualists believe that one mind can sense another by using a "sixth sense," and such dualists would have no reason not to think that two minds could both sense a third mind in this way. For another thing, it seems logically possible that two sufficiently sensitive minds, each with a seventh or eighth or ninth sense, could both sense, say, the proposition that  $2 + 2 = 4$ .

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<sup>10</sup> I take it that this is the definition that George Berkeley would accept. He is of course notorious for going on to argue that such objects cannot exist independently of their being sensed. See his *A Treatise Concerning the Principles of Knowledge*, Part I, Sections 1ff.

<sup>11</sup> Herbert Feigl proposes an account along these lines in his *The "Mental" and the "Physical"*.

## 6 The Simple Account of Physical Objects

Considering these difficulties with the Physical and Sensational Accounts, it might seem that the wisest course would be to take the concept of a physical object as a simple, unanalyzable concept. But I think it would be overly hasty, at this point, to do so. I think that when dealing with such an important concept, we should prefer a more or less plausible analysis that seems to give fairly intuitive results to the position that there is no interesting analysis of the relevant concept. And I think that there are indeed available several more or less plausible analyses of the concept of a physical object, including the Spatial Location Account. Thus I think it would be best to adopt one of those analyses. Let's turn now to some of the rivals of the Spatial Location Account that, like it, seem preferable to the Simple Account of Physical Objects.

## 7 Quine's Account of Physical Objects

W.V. Quine is one of the few philosophers who explicitly addresses the question *What are physical objects?* without proposing either the Physical Theory Account or the Sensational Account as an answer. In his paper, "Whither Physical Objects?," Quine says

... let us understand a physical object, for a while, simply as the aggregate material content of any portion of space-time, however ragged and discontinuous.<sup>12</sup>

The reason Quine says "for a while" is that he goes on to give an account of what can constitute the "material content" of any region of space-time, and, on his account, talk about material contents is to be replaced by talk about distributions of states over space-time.<sup>13</sup> Thus, on Quine's view, physical objects actually *are* distributions of states over space-time. But there is more. He goes on to analyze both states and space-time regions as constructions out of pure set theory.<sup>14</sup> Thus, according to Quine, physical objects are actually

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<sup>12</sup> "Whither Physical Objects?," p. 497.

<sup>13</sup> "Whither Physical Objects?," p. 499.

<sup>14</sup> "Whither Physical Objects?," pp. 499-502.



distributions of purely set-theoretic constructions over other purely set-theoretic constructions.

I don't know exactly what "distributions" are, according to Quine, but apparently they end up being constructions out of pure set theory as well, for Quine later says, by way of summarizing his account of physical objects,

Physical objects... evaporated into space-time regions... Finally the regions went over into pure sets...<sup>15</sup>

Thus, according to Quine, physical objects ultimately *are* constructions out of pure set theory.

Now, with all due respect, this just seems wrong. It can't be that physical objects are somehow constructions out of pure set theory, for physical objects are contingent, while set-theoretic constructions (from pure set theory, at least) exist necessarily. Therefore, no physical object is identical to any construction out of pure set theory.

There are two main ways Quine might respond to this modal objection. First, being no friend of modality, he might simply reject as meaningless such modal talk as the claim that physical objects are contingent while constructions out of pure set theory exist necessarily. But I am a friend of modality, and so this response seems untenable to me. Second, Quine might say that certain purely set-theoretic constructions, while existing necessarily, nevertheless have *contingently* the property of being a physical object. Thus, he might say, there is a sense, albeit a non-literal one, in which it is true that physical objects exist contingently. For my part, however, I find this position unacceptable. It seems to me that it is just plain true – and not merely true in some special, non-literal sense – that the chair I am sitting on might not have existed.

In any case, the modal objection really concerns Quine's somewhat extreme ontological views rather than his original definition of 'physical object'. According to his original definition, a physical object is the material content of any region of space-time. Let's consider that proposal independently of Quine's views about the construction of matter and space-time out of the objects of pure set theory.

One immediate question we are likely to ask about this proposal is what 'material' means. The problem is that it seems like 'material' and 'physical'

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<sup>15</sup> "Whither Physical Objects?," pp. 502-03.

ought to be synonymous, so that any definition of 'physical' containing 'material' is apparently circular. And even if we stipulate that 'material' does not mean the same thing as 'physical', so that 'the material content of any region of space-time' ends up being a non-circular definition of 'physical object', we will still be left in the dark about what physical objects are unless we have some independent definition of 'material'; and it's hard to imagine what this might be.

Still, these problems with the meaning of 'material' are not fatal to Quine's proposal. We can avoid them, while at the same time retaining the spirit of his original account, by just deleting the word 'material' from the original definition.<sup>16</sup> The result is an account of physical objects according to which a physical object is simply the aggregate content of any portion of space-time, however ragged and discontinuous.

This strikes me as a somewhat plausible account of physical objects, and one that yields more or less intuitive results. But I think it can be seen that the Spatial Location Account has a serious advantage over this account.

The problem with Quine's view is that it essentially amounts to a combination of the Spatial Location Account of Physical Objects with Universalism. (Universalism is a controversial answer to Peter van Inwagen's Special Composition Question; according to Universalism, any non-overlapping, physical objects whatsoever compose a single physical object.<sup>17</sup>) Hence the only difference between Quine's view and the Spatial Location Account is that Quine's view entails Universalism while the Spatial Location Account does not. Nor does the Spatial Location Account entail that Universalism is false. And it seems to me that this neutrality regarding Universalism constitutes an important advantage of the Spatial Location Account over Quine's view.<sup>18</sup>

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<sup>16</sup> I'm grateful to Theodore Sider for making this point in correspondence.

<sup>17</sup> See van Inwagen's *Material Beings*, Sections 2 and 8.

<sup>18</sup> It is worth noting that Quine's view also entails the Doctrine of Arbitrary Undetached Parts. (For a discussion of this doctrine, see van Inwagen, "The Doctrine of Arbitrary Undetached Parts.")

## 8 The Common Sense Account of Physical Objects

Speaking of van Inwagen, there is a passage near the beginning of his *Material Beings* in which he suggests an account of physical objects. Van Inwagen says

Like most interesting concepts, the concept of a material object is one without precise boundaries. A thing is a material object if it occupies space and endures through time and can move about in space (literally move about, unlike a shadow or a wave or a reflection) and has a surface and has a mass and is made of certain stuff or stuffs. Or, at any rate, to the extent that one was reluctant to say of something that it had various of these features, to that extent one would be reluctant to describe it as a material object.<sup>19</sup>

(I am assuming that the expressions ‘physical object’ and ‘material object’ are synonymous, and also that van Inwagen takes them to be so.)

Before I continue, I need to make a short digression. As I see it, we are trying to get an analysis of the concept picked out by our usage of expressions like ‘physical object’. But for the present purposes, there are actually two linguistic communities to consider: (i) ordinary English speakers in everyday contexts, and (ii) philosophers in discussions of philosophical issues that involve the concept of a physical object. Therefore, as I see it, there are potentially two distinct concepts involved: (i) the everyday concept of a physical object, and (ii) the philosophical concept of a physical object.

Now, I think van Inwagen’s proposal is probably the correct account of the everyday concept of a physical object. I think if you ask an ordinary English speaker, or even a philosopher in an ordinary context, what physical objects are like, he or she is likely to say things that support van Inwagen’s proposal. And I think this is because it just so happens that the macroscopic physical objects of our world tend to have the properties on van Inwagen’s list. I will refer to the account suggested by van Inwagen, which I accept as the correct analysis of the everyday concept of a physical object, as the Common Sense Account of Physical Objects. But although I accept the Common Sense Account as the correct analysis of the everyday concept of a physical object, I

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<sup>19</sup> *Material Beings*, p. 17.

think there are good reasons to prefer the Spatial Location Account as an analysis of the philosophical concept of a physical object.

One reason for preferring the Spatial Location Account to the Common Sense Account, as an account of the philosophical concept, is that, since the Common Sense Account makes the concept of a physical object an imprecise concept, it also makes any thesis about that concept – such as materialism or any of the others – an imprecise thesis. This seems to me an undesirable result. It would be better, I think, if discussions of theses like materialism turned out to be discussions of precise doctrines with determinate truth-values.

Another reason for preferring the Spatial Location Account over the Common Sense Account, as an account of the philosophical concept of a physical object, has to do with the consequences of the Common Sense Account for some of the smaller objects of our world. Van Inwagen says

Few philosophers would be perfectly happy about calling a quark or a photon or even a large organic molecule a material object, for one has to be very careful in ascribing any of the features in the above list to such things; and talk about the surfaces of submicroscopic objects, or about the stuffs they are made of, tends to verge on nonsense.<sup>20</sup>

I don't know about other philosophers, but I for one would be perfectly happy about calling quarks, photons, and large organic molecules physical objects, despite the fact that these things lack properties on van Inwagen's list. And in fact it seems to me that the Common Sense Account's consequence that these things are not physical objects is a distinct disadvantage of that account. For these smaller objects are what objects like tables, rocks, and humans – paradigm cases of physical objects – are composed of. And surely this is a good principle concerning the mereology of physical objects (in the philosophical sense of 'physical object', that is): *If  $x$  is a physical object, and  $y$  is a part of  $x$ , then  $y$  is a physical object, too.* So it seems to me that the quarks, photons and large organic molecules that compose the macroscopic, physical objects of our world must be physical objects, too, which means that the Common Sense Account simply gets the wrong result in the case of these smaller objects.

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<sup>20</sup> *Material Beings*, p. 17.

A third reason for preferring the Spatial Location Account to the Common Sense Account, as an account of the philosophical concept, is that the Common Sense Account has strange consequences concerning possible worlds with vastly different laws of nature, and very different objects, from our own world. Imagine a world in which there are objects in space, but in which the laws of nature are very different from our own laws of nature. Suppose the laws in this other world make no mention of masses, or surfaces. Suppose these laws instead talk about some alien concepts – shootspa, say, and poxie – none of which plays anything like the role played by mass (or any of the other familiar concepts) in our own laws. The laws in the alien world talk about an object’s spatial location, and shootspa, and poxie, and how these factors determine what happens to that object. Imagine further that the objects in this alien world do not qualify as physical objects, according to the Common Sense Account – they have spatial locations, we can suppose, but are point-sized, pop in and out of existence instantaneously, can’t move around (since they’re instantaneous), don’t have surfaces (being point-sized), and are not made of any stuff (again, being point-sized).

Since there would be no physical objects in this alien world, according to the Common Sense Account of Physical Objects, there would presumably be no laws of physics in the alien world, according to the Common Sense Account. Or at any rate, if ‘physics’ is defined as the science of physical objects and the laws of nature that govern them – and I don’t know of any better definition of ‘physics’ – then there would be no laws of physics in the alien world, since there would be no physical objects there.

But I think that, contrary to these consequences of the Common Sense Account, there would be physical objects in the alien world, at least in the philosophical sense, and I also think that the laws governing the alien objects would be the laws of physics of the alien world.

Here is some evidence for the claim that the laws governing the alien objects would be laws of physics. Imagine a team of top physicists from our world, taking advantage of the latest breakthroughs in “modal travel” technology, going to the alien world. (I guess we have to suppose, for the moment, that physicists have souls, in order to imagine them going to the alien world, since their bodies certainly couldn’t exist there, on account of having masses, surfaces, etc.) Imagine our physicists making a careful study of the spatial objects in the alien world, and discovering all of the laws of nature governing those objects. It seems to me that these world-traveling

physicists would be doing their thing – physics – in the alien world. And it seems to me that the laws these physicists would discover in the alien world would be laws of physics.

A defender of the Common Sense Account of Physical Objects might object that the transplanted physicists would be engaged in some other science – schmysics, say – rather than physics, and similarly that the laws they discovered would be laws of schmysics rather than laws of physics. But this goes against a very intuitive claim about the nature of physics: that the laws of physics can vary dramatically from world to world, and can even be so different in some other possible worlds that they make no mention of concepts like mass, etc.

Here is some evidence for the claim that the objects in the alien world would exemplify the philosophical concept of a physical object. Imagine a team of top philosophers from the actual world studying the alien world. (We don't really need the philosophers to be *in* the alien world, for the purposes of this thought experiment, since they can study it from the comfort of their armchairs. Thus we don't have to assume that philosophers, like physicists, have souls.) These philosophers would want to ask all the same questions that we ask about the actual world, including these: *Are there any non-physical objects?*, *Are all mental phenomena physical phenomena?*, *Is physicalism true?*

Granted, the philosophers studying the alien world may define some new concept – the concept of a schmysical object, say – and then ask whether there are any non-schmysical objects in the alien world, whether mental phenomena are schmysical phenomena in the alien world, and whether schmysicalism is true in the alien world. But I think that there are certain philosophical questions that these philosophers would want to ask concerning both the actual world and the alien world. And I think that questions about whether there are any non-physical objects, whether mental phenomena are physical phenomena, and whether physicalism is true would be among those questions.

I also think it is awkward to have to say, as the defender of the Common Sense Account has to say, that any philosophers native to the alien world, who lack the concepts of having a mass, having a surface, etc., would be unable to consider the issues that philosophers in the actual world consider when we talk about our controversies over physical objects. It seems to me preferable to be able to say that philosophers all over logical space are in a position to consider exactly the same issues about physical objects: the issue of

whether there are any non-physical objects, the issue of whether all mental phenomena are physical phenomena, etc.

Here is a related reason for preferring the Spatial Location Account over the Common Sense Account as an analysis of the philosophical concept of a physical object. Suppose that the theories of the physicists are actually true, and that there really are quarks and other sub-atomic particles that, as van Inwagen admits, do not fit the Common Sense Account of physical objects. Does it follow from this supposition that materialism, the thesis that only physical objects exist, is false? It seems to me that it does not. I suspect that most of the philosophers who defend materialism would be completely unperturbed by the discovery that the theories of the physicists are correct. If so, this fact accords well with the Spatial Location Account of physical objects, since the putative objects in question are supposed to have spatial locations.<sup>21</sup> But according to the Common Sense Account of physical objects, the discovery that there really are quarks and other sub-atomic particles would amount to a refutation of materialism. I take this as further evidence that the Spatial Location Account is a better analysis of the philosophical concept of a physical object than the Common Sense Account.

Now suppose, instead, it turns out that the true physical theory concerning the actual world posits the existence of objects without spatial locations at all. (This supposition is consistent with the definition of 'physics' as the study of physical objects, just as the supposition that the true biological theory posits the existence of inanimate objects (oxygen molecules, for example) is consistent with the definition of 'biology' as the study of living things.) And suppose that these non-spatial objects are capable of interacting with spatial objects, like our bodies. Does it follow from *these* suppositions that materialism is false? It seems to me that it does. Moreover, I think most materialists *would* be perturbed by the discovery that the true physical theory was such a theory. In fact, I suspect that most materialists, upon being convinced of such a discovery, would throw in the towel and concede that materialism is false, after all.

Here is a final reason to prefer the Spatial Location Account over the Common Sense Account as an analysis of the philosophical concept of a physical object: the Spatial Location Account allows for a way of dividing up the world's contingent objects, and characterizing the relation between the

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<sup>21</sup> With one possible kind of exception that will be discussed below.

laws of nature and the laws of physics, that is very appealing for its neatness and simplicity. Let me explain.

If we adopt the Spatial Location Account then we can draw a sharp distinction between two kinds of contingent object: physical contingent objects, and non-physical contingent objects. Souls, if there were any, would be non-physical contingent objects. (I am ignoring such “derivatively contingent” objects as sets containing contingent objects, singular propositions about contingent objects, and other abstract objects that are contingent in virtue of having contingent constituents.) And we can give a precise account of the relation between two kinds of law of nature: those concerned exclusively with physical objects, and those concerned with all contingent objects, physical and non-physical. The laws concerned with all contingent objects, physical and non-physical, would be the laws of nature. And the laws concerned exclusively with physical contingent objects – the laws of physics – would be a subset of the laws of nature. This will in turn make physicalism a clear and precise thesis, rather than one concerning a concept – the concept of physics – with an indeterminate extension.

But it seems to me that adopting the Common Sense Account will not allow us to give such a tidy account of these matters. For one thing, if we accept the Common Sense Account then we cannot draw a sharp distinction between physical objects and non-physical objects, since these will be imprecise concepts with no sharp boundary separating them. And for another thing, if we accept the Common Sense Account then we will have to lump together, under the general heading of “non-physical objects,” such disparate objects as quarks and electrons, on the one hand, and non-spatially-located souls, on the other hand. Similarly, if we accept the Common Sense Account then we will have no easy way of drawing a sharp distinction between the laws of nature governing physical objects and the laws of nature governing non-physical objects, since there will be no sharp boundary between these two types of object.

## 9 Some Objections to the Spatial Location Account

I’d like to conclude by considering some objections to the Spatial Location Account of Physical Objects. One objection that might be raised is this. I have given reasons to prefer the Spatial Location Account over the other accounts of the philosophical concept of a physical object, but it is not clear that I have



given any reason to think that the concept of having a spatial location is in fact the concept picked out by the usage of expressions like 'physical object' by actual philosophers.

My reply to this objection is that the analysis that I am proposing in this paper – the Spatial Location Account of the philosophical concept of a physical object – is, to a certain extent, meant to be a *prescriptive* rather than a *descriptive* proposal. I am not at all certain that there is in fact a single concept that all philosophers have had in mind when using the expression 'physical object'; but I am certain that it would be best if philosophers adopted the proposed account of what that expression means, for the reasons spelled out above. That is, I am arguing that although it might be unclear just what concept is picked out by the usage of expressions like 'physical object' by actual philosophers, there is one way of resolving the muddle – namely, by adopting the Spatial Location Account – that has great advantages over its rivals. Thus it would be best for us to resolve the muddle by adopting the Spatial Location Account.

It might be objected at this point, however, that there is no reason to think we need to have just *one* concept of a physical object. Perhaps, it might be claimed, there are several concepts associated with the expression 'physical object', each of which is suitable to some philosophical purpose or other.

My own view is that it would be preferable to settle on a single concept that is relevant to all the discussions philosophers have about "physical objects". But I do not wish to be dogmatic about this point. For those who disagree with me, let me offer the Spatial Location Account as an analysis of the unique concept of a physical object that is relevant to materialism, the thesis that only physical objects exist. It seems clear to me that consideration of materialism (and closely related theses such as the thesis that all mental events are physical events) is the main context in which the expression 'physical object' features prominently in philosophical discussions. And surely everyone will agree that, at least for the purposes of discussing materialism (and the closely related theses), we should settle on a single concept, in order to give determinate meanings to the relevant claims.

Another objection to the Spatial Location Account that might be raised concerns a claim that, if I am not mistaken, is actually made by a currently accepted theory in physics, namely, the claim that certain sub-atomic particles can temporarily lack any spatial location. The objection is that the Spatial Location Account would have strange consequences for such particles.

I don't find this a very troubling objection. Let's consider some different possible ways the claim in question could be understood. On one interpretation, the objects in question lack *precise* spatial locations, but nevertheless have *indeterminate* spatial locations. If this is indeed the claim, then it seems to me that the Spatial Location Account would entail that these objects are indeed physical objects; and this strikes me as the right result in this case. On another interpretation of the relevant claim, the objects in question have spatial locations, but we are for some reason unable to determine what those locations are. If this is the claim, then the Spatial Location Account would again entail that these objects are physical objects; and again this strikes me as the correct result. On a third interpretation of the relevant claim, the objects in question temporarily go out of existence (or go out of existence, and are soon replaced by similar objects in nearby places). If this is the claim, then the Spatial Location Account would entail that while these objects didn't exist, they would not be physical objects; which again seems to be exactly the right result. And finally, on a fourth interpretation of the relevant claim, the objects in question really lack spatial locations at times when they exist. But if this is indeed the claim, then the Spatial Location Account entails that those objects are, at the times when they genuinely lack spatial locations, non-physical objects; and this too seems to be the correct result. It would no doubt be strange to say that some objects can change from being physical to being non-physical, and then change back again; but that just shows what a strange claim this is, when interpreted in this way.

Here is a third objection to the Spatial Location Account. There are certain objects that would count as physical objects, on the Spatial Location Account, but that we wouldn't want to count as physical objects. Among these would be many events (namely, those with spatial locations), a large number of facts (including the fact that the White House is white, a fact that is presumably located where the White House is located), spatial locations themselves, and even some universals, on certain theories of universals.<sup>22</sup>

I think that this is an important objection, which raises interesting issues about the entities in question, but I also think that in the end the objection is not damaging to the Spatial Location Account. Here is why. Let's grant, for

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<sup>22</sup> I have in mind theories according to which a universal is located where its instances are. See, for example, Armstrong, *Nominalism and Realism* and *A Theory of Universals*.

the sake of argument, that objects of all of these types exist, and that some examples of each type have spatial locations. Then as a first reply to the objection, I would say that these things are indeed physical objects, so that the Spatial Location Account gets the right result in their case. And notice that it is nice to be able to distinguish between, say, *physical* events, on the one hand, and *non-physical* events, on the other hand. Similarly with facts and universals – it is nice to be able to distinguish the physical ones from the non-physical ones. It is also an appropriate result of the Spatial Location Account that there are no physical propositions, since propositions presumably don't have spatial locations. All of this is for the good.

But it might be thought that there is a lingering problem here that has to do with the Spatial Location Account of physical objects and the possibility of refuting materialism. If such things as propositions and the fact that  $2 + 2 = 4$  are *objects* (and I have stipulated above that every thing is an object), then they will count as *non-physical objects*, according to the Spatial Location Account. But their existence shouldn't be taken to show that materialists have been wrong all along.

This is indeed a problem, but if it is a problem for the Spatial Location Account then it is also a problem for the Common Sense Account, as well as any other plausible account of physical objects. After all, things such as propositions, and facts like the fact that  $2 + 2 = 4$ , don't have mass, or most of the other properties on van Inwagen's list. Moreover, it is clear that they will count as non-physical objects on any plausible account of physical objects. Thus, on any plausible account of physical objects, these entities will serve as counter-examples to the claim that there are no non-physical objects. And yet it does not seem like these objects should refute materialism. We can call this The Problem of Non-physical Objects That Do Not Refute Materialism.

Here is my proposed solution to the problem. All parties to the dispute over the correct analysis of the concept of a physical object need some way of distinguishing between the type of object such that non-physical instances of that type present a problem for the materialist, on the one hand, and the type of object such that non-physical instances of that type do not present a problem for the materialist, on the other hand. So let that distinction be given. Then the Spatial Location Account is a way of marking the distinction between two types of object in the first category (the kind that materialists and their rivals care about). Within that category, objects with spatial locations would not refute materialism, but objects without spatial locations would.

In effect, then, I am saying that The Problem of Non-physical Objects That Do Not Refute Materialism is a problem about the formulation of materialism itself. Materialism is sometimes formulated as the view that there are no non-physical objects. But that really won't do, no matter what account of physical objects we accept. Instead, materialism should be qualified in a certain way. It should be the claim that, among "non-abstract" or "concrete" objects (or whatever term we choose for characterizing the objects that materialists and their rivals care about) there are no non-physical objects. Then, given the distinction between the objects that materialists and their rivals care about and the objects that they don't care about, the different accounts of physical objects can be seen as attempts to distinguish, among the objects that materialists and their rivals care about, the ones that are acceptable to the materialists from the ones that are not.<sup>23</sup>

A fourth objection to the Spatial Location Account concerns the possibility of minds with spatial locations. Here is the problem. Many people want to define 'mind' as synonymous with 'non-physical, thinking substance'. But some people who accept this definition of 'mind', and say they believe in minds, also believe that minds can have spatial locations.<sup>24</sup> Such people will find the Spatial Location Account unacceptable.

I admit that this is a serious objection to the Spatial Location Account, and I expect that some people will want to reject the account because of this objection. But there is a price to be paid for rejecting the Spatial Location Account, and I think that avoiding the objection in question is not worth that price. Let me explain.

The objection is based on the fact that the combination of the Spatial Location Account with the following two claims is an inconsistent triad:

- (1) Minds are non-physical objects.

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<sup>23</sup> For an excellent discussion of other ways to formulate materialism that would also avoid The Problem of Non-physical Objects That Do Not Refute Materialism, see Lewis's discussion of materialism in "New Work for a Theory of Universals."

<sup>24</sup> Locke may be such a person. See, for example, his *An Essay Concerning Human Understanding*, II.i.12. Descartes is another example of a philosopher who seemingly held that minds are non-physical but have spatial locations. Descartes would probably endorse the Spatial Extension Account of Physical Objects. See, for example, Descartes's *Meditations on First Philosophy*.

- (2) Minds can have spatial locations.

The inconsistency of this triad can be the basis for an objection to the Spatial Location Account because (1) and (2) each have some independent plausibility. Thus, it is natural to want to avoid the inconsistency by rejecting the Spatial Location Account. But here we must remember that the Spatial Location Account itself has a great deal to recommend it. In fact, if the arguments I have given above are sound, there is no tenable alternative to the Spatial Location Account. Which means that, unless we are willing to say that there simply is no interesting and correct analysis of the philosophical concept of a physical object, we had better accept the Spatial Location Account.

Moreover, there are two ways of avoiding the relevant inconsistent triad while keeping the Spatial Location Account. First, one could reject (2). While this will strike many people as the right move to make anyway, since many people do not have the intuition that minds can have spatial locations, those who are convinced that minds *can* have spatial locations will not find this a satisfactory response to the objection. But even such people might agree that something of what is plausible about (2) can be captured by the following claim:

- (2a) Minds can interact with physical objects, and a given mind will typically be able to interact directly with only one physical object, so that each mind will typically be linked to a particular spatial location (the location of the physical object with which that mind can interact directly) at any given time.

And (2a) is of course consistent with the combination of (1) and the Spatial Location Account.

The second way of avoiding the relevant inconsistent triad while keeping the Spatial Location Account is to reject (1). Here it is important to notice that what is most plausible about (1) is the idea that minds do not have masses, or surfaces, or most of the other properties on the list in the Common Sense Account of physical objects; i.e., something like the claim that minds do not have these properties is surely what most people who are inclined to accept (1) have in mind. Thus, one who is inclined to say that minds are non-physical objects can consistently maintain both the Spatial Location Account and (2), while at the same time accepting something like the following in place of (1):

- (1a) Minds are physical objects that do not have masses, or surfaces, or most of the other properties on the list in the Common Sense Account of physical objects.

Thus, by rejecting (1) and accepting (1a) instead, one can preserve both the Spatial Location Account and (2), while at the same time retaining what is most plausible about (1).

In short, then, I admit that the combination of the Spatial Location Account with (1) and (2) is an inconsistent triad, and also that (1) and (2) both have some independent plausibility. But given the reasons discussed above for preferring the Spatial Location Account over its rivals, and also given the fact that some or all of what is plausible in (1) and (2) can be captured by (1a) and (2a), respectively, I think that it makes much more sense to resolve the inconsistency by keeping the Spatial Location Account and either rejecting (1) (while accepting (1a) in its place), or else rejecting (2) (while accepting (2a) in its place).

At this point it might be objected that, in light of the above remarks, the Spatial Location Account has been reduced to a mere stipulation. Here is my reply to this objection. Since philosophers talk about physical objects a great deal, and since the expression 'physical object' figures so prominently in so many philosophical controversies, we need a definition of that expression. But, as I admitted above, it is not clear that there is a single concept picked out by our actual usage of the expression. Thus, to a certain extent, any proposed analysis of the concept will be a prescriptive proposal and, hence, somewhat stipulative. Nevertheless, since there is no doubt that we need such an analysis, and since, as I have argued above, the other leading candidates all turn out to be untenable, the Spatial Location Account can be seen to be the best candidate for the office.

A related objection that might be raised here is this: Suppose it turns out that there are spatially located, thinking objects to which the laws of physics do not apply. Then it would be natural to call those things non-physical objects. But they would count as physical objects according to the Spatial Location Account. My reply: Given what I have said in Section 6 above, the laws of physics would, by definition, apply to these putative objects (although it is a separate question whether the laws of physics would be deterministic or indeterministic with regard to them). For on my proposal, the laws of *nature* are all of the laws governing contingent objects, and the laws of *physics* are the laws of nature that are concerned with spatially located objects.

At this point the objection might take a different form. Suppose, the objection might go, it turns out that there are spatially located, thinking objects to which the laws of gravity, electromagnetism, etc., do not apply. Then it would be natural to call those things non-physical objects. But they would count as physical objects according to the Spatial Location Account. My reply to this objection is that it would be best, for the reasons spelled out in Section 6 above, to consider the laws of gravity, etc., to be just *some* of the laws of physics, and to say accordingly that some of the laws of physics don't apply to the objects in question, but that others do. (These objects would presumably be like many other physical objects in this regard.)

The reader might also wonder what are the consequences of the Spatial Location Account for such putative objects as spectres, apparitions, hallucinations, mirror images, and sensations, all of which seem to have spatial locations, but none of which it seems appropriate to call a physical object. The answer, I think, is this: If there really are objects of any of these kinds, and if those objects really have spatial locations, then they are indeed physical objects. But I suspect that most philosophers are going to want to say that talk about these putative objects, insofar as it is true, is really to be analyzed as talk about purely physical phenomena involving such things as brains, electromagnetic processes, etc., all of which have spatial locations.

Here is one last objection to the Spatial Location Account. The Spatial Location Account requires a sharp distinction between time and the dimensions of space. For I have said that the defining characteristic of physical objects is spatial location, not temporal location. And if there is a sharp distinction between spatial location and temporal location, as there must be in order for the former to be the defining characteristic of physical objects while the latter is not, then there must also be a sharp distinction between time and the dimensions of space. But it's well known that many philosophers believe ours to be a world of four basically similar dimensions.

My reply to this objection is that I plead guilty. I do draw a sharp distinction between time and the dimensions of space. I "take tense seriously," as they say; I believe the "3D view" of persisting objects, according to which objects that persist through time do so in virtue of being wholly present at each moment at which they are present, rather than in virtue of having different temporal parts at the different moments; and I believe that there is an important sense in which it is true to say that time passes although

no dimension of space does so.<sup>25</sup> Thus it does not seem to me like a vice of the Spatial Location Account that it requires a sharp distinction between time and the dimensions of space. Instead, it seems like a virtue.<sup>26</sup>

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<sup>25</sup> For more on taking tense seriously, the 3D view of persisting objects, and other alleged differences between time and space, see Markosian, "On Language and the Passage of Time," "The 3D/4D Controversy and Non-present Objects," and "How Fast Does Time Pass?"

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