The standard arguments against physicalism, such as the knowledge argument and the zombie argument, purport to establish that certain mental properties do not supervene on the fundamental properties of physics, where supervenience is supposed to capture the idea, roughly speaking, that one set of properties determines, or suffices for, another set of properties. The supervenience of mental properties on fundamental physical properties is taken as a necessary condition for physicalism because the failure of such supervenience is thought to render mental properties nonphysical; and if there is something nonphysical, then physicalism, which holds that everything is physical, is false. Although many of those engaged in the debate over the mind-body problem object to various aspects of these standard antiphysicalist arguments, most, if not all, agree that if physicalism is true, then mental properties must supervene on fundamental physical properties. I aim to question this widely held view. Why should the supervenience of the mental on the physical be a necessary condition for physicalism?

I. LEADING UP TO A WEAK SUPERVENIENCE PRINCIPLE

How are we to understand the supervenience relation at play in the standard antiphysicalist arguments? In the literature on physicalism, one finds myriads of different supervenience principles along with a sprinkling of debates over whether the stronger of them can serve as necessary conditions for physicalism. However, it is widely, if not universally, accepted that a weak supervenience principle of the sort proposed by Frank Jackson, David Chalmers, and David Lewis is

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necessary for physicalism.\(^2\) It is this weak version of supervenience that is my target, and let me lead up to a formulation of it by explaining why two stronger supervenience principles are typically rejected as necessary for physicalism.

Consider the following supervenience principle:

Strong Supervenience (SS): In any world, if someone has mental property \(M\), then this person has certain fundamental physical properties \(P\) such that in any possible world, anyone with \(P\) has \(M\).\(^3\)

Although some take physicalism to entail SS, many do not. One reason for this is that SS appears to be inconsistent with the commonly held view that an individual’s mental properties can depend on external factors. For example, whether someone is intelligent might depend not only on her microphysical properties, but also on how her abilities compare with those of others.\(^4\) Yet this alone, it seems, should not disqualify intelligence from being physical. Moreover, most think that physicalism is a contingent thesis.\(^5\) That is, most think that if physicalism is true, then our world, but not necessarily every possible world, is physical. For example, physicalism, if contingent, could be true even if there are other worlds consisting entirely of nonphysical minds. However, SS is not consistent with this possibility.

These thoughts have led many of those involved in the debate over the mind-body problem to formulate the thesis of physicalism in terms of a “global” supervenience principle. As opposed to SS, where the subvenient base consists of the fundamental physical properties of an individual, the subvenient base for global supervenience is the entire realm of fundamental physical properties, entities, and laws. The general idea of global supervenience is that once the world of fundamental physics is in place, everything else comes along for free; or as it is sometimes put: All God had to do was to create the fundamental physical realm.


\(^3\) This is a variation of Jaegwon Kim’s strong supervenience principle in “Concepts of Supervenience,” *Philosophy and Phenomenological Research*, xlv, 2 (December 1984): 153–76.

\(^4\) It may be that taking into account all subvenient relational properties eliminates the problems associated with properties such as being intelligent. See Kim, “Postscripts on Supervenience,” in *Supervenience and Mind: Selected Philosophical Essays* (New York: Cambridge, 1993), pp. 161–71.

\(^5\) See, for example, Lewis, *op. cit.*; and Jackson, *From Metaphysics to Ethics*. 
Here is another way of capturing this idea:

**Basic Global Supervenience (BGS):** Any possible world that duplicates the fundamental physical entities, properties, and laws of our world, duplicates all the entities, properties, and laws of our world.

This principle is a rather minimal requirement for physicalism; it clearly demands less than identity between mental properties and fundamental physical properties since it allows for an individual in another world to instantiate your mental properties without instatiating your fundamental physical properties. Moreover, as opposed to the SS principle, BGS allows for the possibility of worlds consisting only of nonphysical minds since such worlds would not duplicate all the fundamental physical properties of our world. However, as some see it, BGS is still not necessary for physicalism, because it incorrectly deems our world as nonphysical, if there are other possible worlds just like ours but with, say, epiphenomenal ghosts. If there were such ghostly worlds, BGS would fail since things in our world, such as aluminum cans, have the property of not being anywhere near a ghost, while in the duplicate world, certain cans may lack this property.

Some versions of global supervenience, however, are consistent with possible epiphenomenal ghosts and other nonphysical “extras,” as they are called, and are widely, perhaps even universally, accepted as necessary conditions for physicalism. Such theses either quantify over a limited number of worlds, namely, those without extras, as do Jackson’s and Lewis’s versions of supervenience, or exempt certain properties, such as the property of not being three feet from a ghost, from the class of properties that must be duplicated in order for supervenience to hold, as does Chalmers’s version of supervenience. Because of this, they avoid the problem of extras. For simplicity, I focus on Jackson’s formulation of supervenience, though my reasons for questioning whether it is necessary for physicalism apply to the other formulations as well.

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6 See, for example, *ibid.*; Lewis, *op. cit.*; and Chalmers, *op. cit.*
8 See Jackson, *From Metaphysics to Ethics*; Lewis, *op. cit.*; and Chalmers, *op. cit.*, respectively.
9 Though my arguments apply equally to Lewis’s, Jackson’s, and Chalmers’s versions of supervenience, Stephan Leuenberger, in “Ceteris Absentibus Physicalism,” in Dean Zimmerman, ed., *Oxford Studies in Metaphysics*, vol. 4 (New York: Oxford, 2008), pp. 145–70, argues that Chalmersian supervenience alone is not necessary for physicalism. Following John Hawthorne, Leuenberger points out that Chalmersian supervenience, which states, roughly, that any world that duplicates all the fundamental physical properties of our world, duplicates all the positive properties of
Jackson calls duplicate worlds without extras “minimal physical duplicates.” A minimal physical duplicate is, as he puts it, what you get “if you duplicate our world in all physical respects and stop right there,” where all “physical respects” means, roughly, the entities, properties, relations, and laws posited by the physical sciences, or what I shall call the “narrowly physical.”

Jackson states his supervenience principle, what I call “restricted supervenience,” as follows:

**Restricted Supervenience (RS):** Any world which is a *minimal* physical duplicate of our world is a duplicate *simpliciter* of our world.\(^{11}\)

In other words, RS says that any world that duplicates the narrowly physical entities, properties, relations, and laws of our world and nothing extra, save for what follows by necessity from this, duplicates everything in our world.

Although there is a lively debate in the literature about whether RS is a sufficient condition for physicalism, many seem to find the claim that physicalism implies RS simply obvious, perhaps even definitional.\(^{12}\) Of course, if it were definitional, we would have a good explanation for this rather rare occurrence of widespread agreement our world, is not compatible with the possibility of “blockers,” which are understood as nonphysical entities that block phenomenal experiences, such as pain. Hawthorne, in “Blocking Definitions of Materialism,” *Philosophical Studies*, cx, 2 (August 2002): 103–13, argues that if blockers are possible, physicalism is false, and so we should reject Lewisian and Jacksonian supervenience as sufficient conditions for physicalism. However, Leuenberger argues that physicalism should be seen as compatible with the possibility of blockers, and so Chalmersian supervenience is not necessary for physicalism. Leuenberger formulates his own thesis of physicalism, “*ceteris absentibus* physicalism,” which, like Lewis’s and Jackson’s, is consistent with the possibility of blockers. My argument applies to *ceteris absentibus* physicalism as well.

\(^{10}\) Jackson, *From Metaphysics to Ethics*, p. 12. More specifically he says, “physicalists have three reasonable...way[s] of explaining what they mean by physical properties and relations—they are those that we need to handle the non-sentient, they are broadly akin to those that appear in current physical science, they are those we need to handle the relatively small” (p. 8). Though not directly relevant to the topic of this paper, one can quibble with this as a way to understand the subvenient base properties, and I have done so in various papers including “The Body Problem,” *Noûs*, xxxiii, 2 (June 1999): 183–20; and “What is the Physical?” in Brian McLaughlin, Ansgar Beckermann, and Sven Walter, eds., *Oxford Handbook of Philosophy of Mind* (New York: Oxford, 2009), pp. 173–88.

\(^{11}\) Jackson, *From Metaphysics to Ethics*, p. 12, specifically Jackson’s “thesis (B).”

\(^{12}\) For arguments that RS is not sufficient for physicalism as well as attempts to revise it so as to make it sufficient see, for example, Terence Horgan, “From Supervenience to Superdupervenience: Meeting the Demands of a Material World,” *Mind*, cxi, 408 (October 1993): 555–86, at pp. 555–58; and Jessica Wilson, “Supervenience-based Formulations of Physicalism,” *Noûs*, xxxix, 3 (September 2005): 426–59.
in philosophy. However, I shall argue that not only does it not follow by definition, but it does not necessarily follow at all.

II. ARGUMENTS THAT PHYSICALISM ENTAILS SUPREVENIENCE

Explicit arguments for the entailment from physicalism to RS are rare, though not entirely absent from the literature. Jackson, for example, argues as follows:

Suppose, to start with, that [RS] is false. Then our world and some minimal physical duplicate of it differ: at least one contains something the other does not. But, by definition, a minimal physical duplicate of our world does not contain any laws and particulars, or instantiate any properties or relations, that do not appear in our world—everything in any minimal physical duplicate of our world is in our world. Does our world contain some laws or particulars, or instantiate some properties or relations, that the minimal physical duplicate does not? But then these particulars or properties and relations would have to be non-physical, as our world and the duplicate are physically identical, and physicalism would be false. Hence, if [RS] is false, physicalism is false. That is, physicalism is committed to [RS].

The argument is straightforward; laying it out in steps we have:

1. Suppose RS is false.
2. If RS is false, then our world and some minimal physical duplicate of it differ: at least one contains something the other does not.
3. But by definition, every entity or law in a minimal physical duplicate of our world is in our world, and every property or relation instantiated in a minimal physical duplicate of our world is instantiated in our world.
4. Moreover, if our world were to contain or instantiate anything that the minimal physical duplicate would not, then whatever it is would not be physical, and physicalism would be false.
5. Thus, physicalism implies RS.

Premises (2) and (3) are, as Jackson points out, self-evident. However, (4) requires defense. It tells us that if our world were to contain something that a minimal physical duplicate would not, then whatever it is would not be physical, where the notion of physical at issue is not the narrow sense of “physical,” since the existence of, say, a blade of grass does not suffice to refute physicalism, but, rather, the “broadly physical,” which encompasses the narrowly physical as well as grass, tables, chairs, and, assuming that physicalism is true, everything else.

13 Jackson, From Metaphysics to Ethics, p. 13.
14 Or, as some prefer to see it, if physicalism is true, the broadly physical encompasses everything contingent or causally efficacious. See, for example, Andrew Melnyk, A Physicalist Manifesto: Thoroughly Modern Materialism (New York: Cambridge, 2003), p. 27.
But why should we accept this fourth premise? Why must our world contain something broadly nonphysical, if it were to contain something that a minimal physical duplicate would not contain? If we assume that physicalism implies supervenience, then these our-worldly supernumeraries would count as nonphysical; but obviously we cannot make this assumption in the context of an argument intended to prove the implication. The only reason Jackson provides for thinking that these extra occupants must be nonphysical is that “our world and the duplicate are physically identical.”15 Yet how do we know this? Certainly, we know that our world and the minimal physical duplicate are narrowly physically identical since a minimal physical duplicate duplicates our world in all narrowly physical respects. But how do we know that they are broadly physically identical? How do we know, in other words, that anything in our world that does not appear in the minimal physical duplicate cannot be broadly physical?16 Jackson has not provided an argument for this, yet we need to know this in order to conclude that the difference between worlds is due to our world containing something broadly nonphysical, which, in turn, is what is needed to show that physicalism would be false in such a situation.

Apart from this argument for why physicalism implies RS, Jackson also tells us that supervenience is of use in formulating physicalism because supervenience excludes independent variation between narrowly physical properties and mental properties, and such independent variation would imply that mentality is over and above the physical.17 For example, he explains, position in space-time is over and above what can be specified by three coordinates since although four coordinates completely determine position in space-time, an object’s position in space-time can vary while three of its coordinates remain constant; similarly, average density is over and above mass since although mass and volume completely determine average density, an object’s average density can vary while its mass remains constant. But must physicalism exclude independent variation between narrowly physical properties and mental properties? Jackson’s examples are of identities and so exclude such variation. Four coordinates determine position in space-time because an object’s position in

15 Jackson, From Metaphysics to Ethics, p. 13.
16 Remember, we are assuming that RS fails, so we cannot merely say that in a minimal physical duplicate the rest of the physical properties come along for free, as it were. If they did, it would of course be trivial that anything that is in our world that is not in a minimal physical duplicate would be nonphysical.
17 Jackson, From Metaphysics to Ethics, p. 9.
space-time just is its position specified by these coordinates; a body's mass and volume determine its average density because average density just is total mass divided by total volume. However, physicalism need not imply mind-brain identity.

Gene Witmer defends the implication from physicalism to supervenience, as well, telling us that if mental properties are nothing over and above narrowly physical properties (as is claimed by physicalism), then narrowly physical properties must suffice for mental properties (as is asserted by supervenience). The general argument, he says, is “short and sweet”:

Suppose Q didn’t suffice for P. That is, suppose it is possible for it to be true that Q, while not true that P. Then something in addition to the fact that Q is needed to make it true that P, in which case, surely, the fact that P is something over and above the fact that Q.\(^{18}\)

The argument is short, but I question its sweetness. Certainly, if P does not supervene on Q, then P will be, in some sense, over and above Q. Witmer, however, has not argued that physicalism must imply that mental properties cannot be over and above narrowly physical properties. Physicalism must imply that all properties are physical in the broad sense, but we do not yet have a reason for thinking that in order for mental properties to be physical in the broad sense, they must supervene on narrowly physical properties.

Perhaps the most common reason for thinking that physicalism requires a supervenience principle such as RS is that physicalism is thought to imply that God, as it were, after creating the domain of fundamental physics, rested; and the failure of RS means that there was more work to be done. But why must physicalism imply this?

The idea of physicalism entailing that God had only to set the quantum gambol in motion has roots in Saul Kripke’s figurative description of the relation between pain and C-fiber stimulation.\(^{19}\) On Kripke’s account, in order for us to feel C-fiber stimulation as pain, God had to perform an extra task beyond merely creating C-fiber stimulation, which shows, he argues, that the relation between C-fiber stimulation and pain could not be identity. Believers in the entailment from physicalism to supervenience take this one step further and assume that if God had more work to do, or in other


words, if supervenience fails, then physicalism must be false. Yet if we accept that physicalism need not be an identity thesis, why should the failure of supervenience have this implication? Physicalists who accept the “all-God-had-to-do” metaphor do not think that God actually enters the picture. Rather, God is understood as a placeholder for certain unknown forces of nature. So as long as God does not really exist, what is wrong with having her do a little extra work?

This extra work may appear suspect because it seems to involve further acts of creation, as it were, beyond the initial creation of that extremely hot, swarming soup that emanated from the Big Bang. But if physicalists can accept that nature can take care of the initial creation, it seems that they should be able to accept that, if further work were needed, nature could take care of that as well. How she does it might be rather mysterious to us, at least for now; however, just as with the Big Bang, this need not be a reason to take the results of her work as nonphysical.20

Admittedly, if RS or some other similarly weak supervenience principle does not hold in our world, then additional laws are needed to account for observed regularities between lower-level and higher-level properties. For example, if the properties, entities, and laws of chemistry did not supervene on the properties, entities, and laws of physics, we might need an extra law that guarantees that every time a certain quantum configuration occurs, for example, a certain event at the chemical level also occurs. And one might object that this is exactly the type of law that would hold between the neural and the mental, if dualism were true. This may be, but why should it matter? The law of gravity, for example, would presumably also hold if dualism were true. Yet the law of gravity does not pose a problem for physicalism. Consequently, it seems that the mere fact that a certain type of law would need to hold in a nonphysical world does not entail that any world with that type of law is nonphysical.

There is also Occham’s razor to consider, and a world with additional laws connecting higher- and lower-level properties might seem ontologically profligate. However, this razor is merely a methodological tool, and in terms of leading us to the true nature of the world, it has always been of the disposable variety. In other words,

20 Some may see this position as a robust emergentist view. If so, my argument implies that robust emergentism could be a version of physicalism. For another perspective on emergentism as a form of physicalism see William C. Wimsatt, “Emergence as Non-Aggregativity and the Biases of Reductionisms,” Foundations of Science, v, 3 (2000): 269–97.
when devising a theory, it may be preferable to pick the simpler of two empirically equivalent hypotheses, but the world itself might not conform to the simpler hypothesis. The world, even if physicalism is true, might not be clean-shaven. Or, at least, there seems to be no reason to think that physicalism excludes this possibility.

III. PHYSICALISM WITHOUT SUPERVENIENCE

If there is no more to the argument that physicalism requires a supervenience principle along the lines of RS than the type of considerations presented by Jackson and Witmer, along with the all-God-had-to-do contention and some worries about extra laws—and from what I can tell there is nothing significantly different from this to be found in either the literature or the lore—we should conclude that there are no good arguments for the view that physicalism requires supervenience. Although I take this to be a worthwhile result in itself since hitherto these arguments have gone unquestioned, it is, of course, not yet an argument against the view that physicalism entails the supervenience of the mental on the fundamental physical, especially given that there are those who think this entailment does not even call for argument. What should come next, then, is the knock-down refutation of the view. This, alas, I cannot provide. However, here is an argument of a rather gentler persuasion.

Imagine that our world were such that duplicating our fundamental physics—that is, duplicating the world’s quantum state, or whatever it is that is actually fundamental—would fail to duplicate any higher-level entities or properties whatsoever. That is, imagine that duplicating fundamental physics could give us a world with, say, just quarks, leptons, their antiparticles, and such like, but no chemical bonds, no molecules, no cells, no organisms. If our world were like this, chemical properties, among others, would fail to supervene on fundamental physics. Must this be a world in which physicalism is false? Or to narrow the question down, must we understand the chemical bonds (and the properties thereof) in this world as non-physical? There seems to be no reason to think that we must. Yet if this is correct, physicalism can be true even if chemical, biological, psychological, and other such properties fail to supervene on the entities, properties, laws, and relations of physics.

What accounts for the intuition that chemical bonding would still be physical in such a situation? Could it be that because we are so utterly convinced that chemistry does supervene on physics that we cannot separate the notions of chemical bonding and physicality in our minds? Most likely, for those of us who are thus convinced, this is at least part of the explanation of the intuition. However, if it
were widely accepted that chemical bonding does not supervene on physics, I imagine that such devotees of the implication from physicalism to supervenience would most likely relent; the non-supervenience of chemical bonding on physics just does not matter enough to make us give up physicalism.

Is it even possible to imagine that chemistry fails to supervene on physics? A priori physicalists hold that if physicalism is true, then the fundamental physical properties of our world a priori necessitate the higher-level properties of our world. Thus, for the a priori physicalist, if physicalism is true, it is not possible to imagine coherently a world that duplicates our physics (in the relevantly restricted way) and nothing else. But even a priori physicalists think that physicalism is a contingent doctrine in as much as it could have been false. For example, they allow for the possibility of Cartesian dualism, which, on their view, involves a physics that is substantially different from ours, a physics which is such that duplicating it would not duplicate the mental realm. Therefore, it seems that they would also allow for the possibility of a physics that could be duplicated without duplicating anything else. So if in order to clearly imagine this physics-only scenario you need to imagine a fundamental physics different from our own, so be it. The question remains: why must a world (possibly different from our own) whose physics does not necessitate (a priori or otherwise) any of its higher-level properties be nonphysical?

David Lewis identified a weak supervenience principle along the lines of RS as a minimal physicalist commitment, a principle shared by all versions of physicalism. But the failure of chemistry to supervene on physics is actually compatible with various apparently physicalistic views. For example, if chemistry failed to supervene on physics we could still maintain a mind-brain identity thesis, one that holds that mental properties just are certain neural properties, since even if duplicating physics would fail to duplicate the chemical and everything above that, it still could be that, say, experiencing intense, painful heat is nothing more than activity in the anterior cingulate cortex (or whatever it is that on the identity theory is thought to be identical to such an experience). Mind-brain identity

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21 See, for example, Jackson, *From Metaphysics to Ethics*; and Chalmers, *op. cit.*


24 Note that this lower-level failure of supervenience is distinct from the higher-level failure of supervenience between the mental and the neural that Kripke argues refutes the mind-brain identity theory.
might not be sufficient for physicalism, if, say, the brain itself is fundamentally constituted by little minds. But supervenience could fail in this way even if the mind-brain identity theory held and the fundamental constituents of the world were entirely non-mental. The failure of chemistry to supervene on physics is also consistent with eliminativism since it is compatible with there being no mental properties at all in our world. Yet a world bereft of mentality, it seems, could be physical regardless of whether chemistry supervenes on physics.25

Of course, even if chemistry fails to supervene on physics, the mental could still supervene on the neural, and ultimately on the chemical in the sense that any world that minimally duplicates the chemical might also duplicate the mental. Hence, one might think that all my thought experiment shows is that if our world were like this, then the physicalist’s supervenience base should expand to include the chemical, or as Jackson suggests, all the physical sciences. Yet if the failure of chemical bonding to supervene on physics does not suffice to make chemical bonding nonphysical, why should the failure of mental properties to supervene on the physical sciences suffice to make mentality nonphysical?26 Why should a supervenience relation be deemed necessary for physicalism when it holds between the mental the physical sciences, but not when it holds between the chemical and physics?

No doubt, physicalists might be taken aback if it were established that the mental does not supervene on the physical sciences. However, imagine that the world were not generally ordered by supervenience relations, that, for example, neither chemistry nor botany nor bacteriology nor mycology had a supervenience base. Physicalists, in such a situation, should be able to say: “That’s just the way the physical world is.” In other words, such a disorderly world, though inconsistent with RS, need not be inconsistent with physicalism.

Those who see physicalism as committed to the view that physics investigates the ontological basis of the world may hold that a

25 In order to satisfy the physicalists, some might want to add that there are also no irreducible moral properties. In other work, I discuss what sorts of properties physicalists might want to exclude in their ontology. See, for example, my “Physicalism in an Infinitely Decomposable World,” Erkenntnis, lxiv, 2 (March 2006): 177–91; and Montero, “What is the Physical?”

26 I am assuming that facts about composition, that is, facts about when certain entities compose a further object, are contingent since, for example, in the imagined scenario the fundamental entities of physics only contingently compose chemical bonds. Though this is a controversial view, it does have its defenders. See, for example, Daniel Nolan, David Lewis (Ithaca: McGill-Queens, 2005); and Ross P. Cameron, “The Contingency of Composition,” Philosophical Studies, cxxvi, 1 (October 2007): 99–121.
supervenience relation matters to physicalists because it expresses this commitment. However, a supervenience relation such as RS is not the only way to do this. For example, even if higher-level features of the world failed to supervene on physics, physics, as opposed to, say, genetics, investigates certain aspects of everything: quarks and leptons comprise genes but not vice versa. Moreover, while rejecting RS, one could uphold a nonmodal supervenience principle, such as Quine’s claim that “nothing happens in the world, not the flutter of an eyelid, not the flicker of a thought, without some redistribution of microphysical states.”

This extremely weak supervenience thesis is almost certainly true, if only for the reason that microphysical states are in constant flux. However, it may even be that, contrary to Quine’s view that physicalism entails a “special deference to physical theory,” one can be an impertinent physicalist. Perhaps physicalism could still be true, even if the flutter of an eyelid, the flicker of a thought, as well as the division of cells, the diffusion of dust, and more were to occur, unfathomably, during states of microphysical tranquility. Perhaps it could even be true if each of the so-called “levels” or “layers” of the world—the microphysical level, the chemical level, the biological level, and so forth—were not hierarchically ordered, but instead flourished independently of all others, cupcake-wise, as it were, rather than in a layer-cake fashion.

These speculations go beyond the claim I have aimed to establish, which is that physicalism does not entail a modal supervenience principle along the lines of RS; so let me leave them aside. However, I should mention that although some understand physicalism’s subvenient base as encompassing the entities, properties, relations, and laws posited by physics or the physical sciences, “via negativa” physicalists, as they are called, understand this base as encompassing the nonmental. The considerations I have proffered against supervenience (in the Jackson-Lewis-Chalmers sense) being a necessary condition for physicalism are intended to apply equally to via negativa physicalism. If the mental were to fail to supervene on the neural, the neural on the chemical, and the chemical on the microphysical, via negativa supervenience fails, yet physicalism, it

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28 Ibid.
seems, could still be true. Define the narrowly physical in terms of the nonmental or in terms of physics: if what I have argued is correct, even the weak sort of supervenience principle formulated by Jackson, Lewis, and Chalmers is not required for physicalism.

No doubt, this may at first sound wrong, for we have all grown up with the supervenience mythos. And I imagine that some will respond that a supervenience thesis along the lines of RS is just part of what we mean by “physicalism.” This response would be reasonable, if a supervenience thesis were merely included in a stipulative definition of “physicalism.” Typically, however, this is not the game being played. Rather, when philosophers understand physicalism as entailing supervenience, they aim to capture what those involved in the debate think is really at stake, that is, to capture what Chalmers calls “the spirit” of physicalism. I have argued that such philosophers fail to do this since supervenience theses such as RS are—depending on how tall one builds the supervenience base—at least odds with, if not directly inconsistent with, the possibility of a physical world in which chemistry fails to supervene on physics, and they are inconsistent with the possibility of a physical world with rampant failures of supervenience.

IV. SEARCHING FOR AN IMPROVED NECESSARY CONDITION FOR PHYSICALISM

If the failure of mind-body supervenience does not show that physicalism is false, what else might show this? A possibility is that the relevant physicalist commitment is not to a world stitched together by supervenience, but to a world where mentality and other features of the world fit in, more or less, the way such things as chemical bonding, photosynthesis, and biological fitness fit into the world. One way this could happen would be if all such features of the world were to supervene on the properties, entities, and laws of physics. But another way would be if supervenience failed altogether. This suggests an improved necessary condition for physicalism: mental properties are not uniquely nonsupervenient on (narrowly) physical properties, a double via negativa, as it were.

Furthermore, if supervenience fails to weave together mind and body, the via negativa-ists can, if they so desire, maintain that nonmental things are more fundamental than mental things since mental and nonmental things both eventually decompose into nonmental things, which are either fundamental or decompose only into other nonmental entities. See Montero, “Physicalism in an Infinitely Decomposable World.”

Or for those who favor the via negativa with respect to what counts as physical (that is, for those who take the fundamental physical to be the fundamental nonmental) we have the triple negative: mental properties are not uniquely nonsupervenient on fundamental nonmental properties.
Perhaps, then, the mere failure of mind-body supervenience does not refute physicalism, but its unique failure does.

This necessary condition dovetails with much of the literature on physicalism in philosophy of mind. Although Chalmers, for instance, does not explicitly claim that the essential question in the debate over physicalism is whether mental properties uniquely fail to supervene on physical properties, this view is implicit in his argument against physicalism, which is underscored by the claim that, apart from the nonsupervenience of the mental on the physical, we do not find similar failures of supervenience in any other relevant cases.32 This addition would be superfluous if the mere supervenience of the mental on the physical were a necessary condition for physicalism. However, if my argument is correct, it is not superfluous. Rather, it is essential, precisely because, in itself, the failure of the mental to supervene on the physical—despite what many explicitly say—does not really matter to physicalists.

I think that the no-unique-nonsupervenience requirement comes closer to being a necessary condition for physicalism than supervenience principles such as RS. And for most intents and purposes, it is probably close enough. However, I think it is worth asking whether the truth of physicalism actually does entail it. Consider the possibility that the relation between the brain and the mind is probabilistic. Imagine, for example, that only 5/6 of normal human beings, as a matter of chance, are conscious. The existence of consciousness in any particular human in such a situation is simply a chance occurrence. Perhaps there is a theory that predicts that this is so; it would not be able to predict whether any given person is conscious but, given a large number of people, would be able to tell us roughly how many conscious individuals there would likely be. Or perhaps there is no such theory, and we have no way of knowing who is conscious, if that nearly 17% were generally behaviorally indistinguishable from the rest.33 What follows about the truth of physicalism? If the relation between consciousness and the brain were only probabilistically specifiable, this would be a remarkable instance of the unique nonsupervenience of the mental on the narrowly physical. Yet must physicalism be false in such a situation? God might need to slog away a bit more—perhaps by introducing a law linking neural states to chances of mental states—but again

32 See, for example, Chalmers, The Conscious Mind, p. 38.
33 I do not, of course, mean to suggest that the world is like this. However, if it were, it could be one explanation for why a certain proportion of philosophers—1/6, perhaps—claim to deny the existence of consciousness!
the existence of additional linking laws seems irrelevant to whether physicalism is true. If the probabilistic-consciousness world counts as a physical world, a unique failure of the supervenience of the mental on the phenomena of physics is not a necessary condition for physicalism.

Of course, quantum mechanics, as far as we can tell, is itself indispensably probabilistic. As with consciousness in the imagined world, although we can specify the average radioactive decay rate of a large number of similar atoms, for example, when a particular radioactive atom will decay is a matter of chance. Thus, there is still a sense in which the probabilistic-consciousness world does not reveal the mental as unique. However, if we go so far as to say that chancy consciousness could be physical because its probabilistic nature is, in relevant respects, no different from the probabilistic nature of radioactive decay, then why should we hold that a Cartesian world, in which the mental uniquely fails to supervene on the wave function of the universe, is a nonphysical world? After all, we do not require the universal wave function to have a supervenience base other than itself. Physicalists are happy to start with a fundamental supervenience base—be it defined in terms of physics or the non-mental—and then claim that in order for anything else to be physical, it must be related to that supervenience base in the right way. But if physicalism is compatible with the existence of a fundamental wave function, why should it be incompatible with the existence of fundamental mentality?

Perhaps the answers to these questions ultimately depend on whether God—not a metaphorical one, but a real one—plays a role in the workings of the world. If God exists, be she a Cartesian workhorse or the highly efficient creator of a mere supervenience base, physicalism is false regardless of the fundamental nature of either the wave function or mentality. Furthermore, even if God does not exist, we tend to see theories that strongly suggest a theistic world-view, especially ones which evoke the idea that God created human beings in her image, as incompatible with physicalism. So perhaps views that entail, or strongly hint at a leading role for God should count as nonphysicalistic. If this is correct, then the reason why physicalists should reject Cartesian dualism is not because it is inconsistent with mind-brain supervenience (and even less so because it posits two kinds of things in the world, for what

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51 For a contrary view see Peter van Inwagen’s *Metaphysics*, 3rd ed. (Boulder, CO: Westview, 2009), part three.
could be so terrible about there being two kinds of things in the
world?), but, rather, because the Cartesian soul allows for the pos-
sibility of immortality, which—while not such a bad thing in and of
itself—is traditionally associated with a theistic world-view.

If the spirit of physicalism, and accordingly a correct neces-
sary, and possibly even sufficient, condition for physicalism, is
ultimately one that banishes and perhaps does not even evoke
the idea of God, we can see why a probabilistic-consciousness
world could seem acceptable to physicalists while a world in which
the mental uniquely but across the board fails to supervene on
the physical would not. The latter, but not the former, intimates
a theistic picture of the world. Admittedly, the idea that the world
is such that it does not strongly suggest the existence of God is
an incredibly messy necessary condition. Nonetheless, it may
be worth thinking about since it just might have the virtue of
being true.

V. THE RELEVANCE TO THE MIND-BODY PROBLEM
AND THE QUESTION OF PHYSICALISM

How would abandoning the view that physicalism entails a super-
venience thesis of the sort proposed by Lewis, Chalmers, and Jackson
affect the debate over the mind-body problem? Since the standard
antophysicalist arguments aim to disprove physicalism by refuting
such theses, they would not attain this end. Zombies, those micro-
physical duplicates of us that lack consciousness, could be consist-
tently accepted as possible even by those who uphold physicalism.
This, of course, does not show that physicalism is correct, but just
that the antophysicalists’ arguments fail.

What could be done to amend them? Assuming the correctness of
my “improved necessary condition for physicalism,” antophysicalists
could emphasize not only that the mental fails to supervene on
the narrowly physical, but that such failure is unique.36 As for those

35 Physicalism, of course, ought to imply that everything is physical, but it need
not exclude phenomena that are neither identical to nor supervene on the posits
of physics (or any subset thereof) from the realm of the physical.

36 Or at least they need to show that everything else of significance does supervene
on the narrowly physical. Chalmers argues that indexical facts do not supervene on
fundamental physical facts but that this is readily settled with the addition of a
fact about the location of the agent in question. (See Chalmers, The Conscious Mind,
pp. 84–85.) Moreover, according to some, the basic physical laws do not supervene
on the fundamental physical properties. See, for example, Michael Tooley, “The
this can be easily addressed by adding the basic laws to the supervenience base (as does
who aim to defend physicalism, they could, if they so desire, continue their crusades against zombies. However, they could also turn to questioning whether supervenience on the narrowly physical is ubiquitous in the nonmental realm, for if it is not, the possibility of zombies might be irrelevant.

Is it reasonable to question the ubiquity of supervenience in the nonmental realm? My sense is that although some philosophers of science question whether we can reductively explain chemistry and other higher-level sciences in terms of physics, they are hesitant to claim that these higher-level sciences do not supervene on physics because, after all, the philosophers of mind say that this would mean that physicalism is false. As I have tried to argue, however, there seems to be no reason to think that physicalism entails even the sort of weak supervenience principle proposed by Jackson. And once we relinquish this requirement, it just might happen that the clues which have led some philosophers to question the reducibility of higher-level sciences to physics will lead these same philosophers to question the supervenience of higher-level sciences on physics.

How would the debate over the mind-body problem be affected, if it were generally accepted that the hierarchy of the sciences is not organized in terms of supervenience? Provided that mentality does not reside at the level of fundamental physics, one possibility is that this would put an end to the debate over physicalism. Minds would fit into the physical world just as chemical bonds do and thus would seem to be perfectly physically acceptable. Another

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A further question is whether physicalism is and ought to be incompatible with haecceitism, which is, roughly, the thesis that in addition to all the facts about the way things are, there are further facts about which object is which. Thus, if haecceitism is true, a world could be qualitatively identical to our world, yet it might be, for example, that President Obama and Martha Stewart switch places so that, despite the lack of any perceptible differences between this other world and ours, in the other world President Obama is Martha Stewart and Martha Stewart is President Obama. According to McLaughlin, “On the Limits of A Priori Physicalism,” in McLaughlin and Jonathan Cohen, eds., Contemporary Debates in Philosophy of Mind (Malden, MA: Blackwell, 2007), pp. 200–23, haecceitism is incompatible with RS; as he sees it, it is common ground that physicalists reject haecceitism (p. 201). If what I am arguing is correct, physicalists could consistently accept that haecceitistic properties fail to supervene on the fundamental physical properties, or at least, if they reject haecceitism, it must be for a reason other than its inconsistency with RS.

possibility, however, is that debates over physicalism would focus on what, as I suggested, is the physicalist’s core concern, namely, questions about the existence of God. For if I am right, the true spirit of physicalism is inseparably connected with the rejection of divine creation.

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