

The problem of extras and the contingency of physicalism

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Perhaps all concrete phenomena obtain solely in virtue of physical phenomena. Even so, it seems that the world could have been otherwise. It seems that *physicalism*, if true, is *contingently* true. In fact, many believe that the actual truth of physicalism allows metaphysically possible worlds duplicating the actual world in all physical respects while containing *immaterial extras*, e.g. ghosts, spirits, or Cartesian souls, that no physicalist would believe actually exist. Here I focus on physicalism regarding mentality and argue that the doctrine does not allow possible worlds that physically duplicate the actual world while differing mentally. By revealing what physicalism (regarding the mind) does not allow, this essay helps us get clear on what the view really amounts to and why it is contingent.

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Many believe that physicalism is a *contingent* thesis. The idea is that while physicalism is actually true, there are metaphysically possible worlds at which the thesis is false. The truth of physicalism is, as Lewis puts it, “a merit of our world that not all other worlds share” (1983, 362).

I agree that physicalism is a contingent thesis. What I deny is another claim made by many who view the doctrine as contingent. It is thought by many that worlds at which physicalism is false include those that physically duplicate the actual world in all respects while containing some immaterial substances – additional non-physical entities (ghosts, spirits, or souls) that no physicalist would say actually exist. Here I focus on physicalism regarding mentality and argue that while the thesis is contingently true, if true at all, it is a mistake to view the doctrine as allowing the possibility of the mental extras just described. Of course, in order to qualify as a physicalist regarding the mind, one must deny the *actual* existence of ghosts, spirits, and other mental entities that are not physically comprised (hereafter, “Extras”). However, I argue, to qualify as a physicalist one must also deny even the *possibility* of worlds that physically duplicate the actual world while containing Extras. Understanding why physicalism does not allow this possibility helps us get clear on why exactly physicalism is contingent.

Section 1 briefly reviews the “problem of Extras” and popular attempts (including those of Horgan, Lewis, and Jackson) to formulate a supervenience thesis that allows the possibility of Extras. In Section 2, I argue that each of these proposals fails for the same reason. The reason is that despite appearances to the contrary, the actual truth of physicalism does not allow the metaphysical possibility of worlds with Extras. Additional support for this

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claim comes in Section 3, where it is argued that the actual truth of physicalism does not allow the possibility of any additional mental items, immaterial or otherwise, in worlds that physically duplicate the actual world. As shown in Section 4, one unexpected benefit of my results is that they provide an easy way to handle Hawthorne's (2002) "Blockers" objection to physicalism. In Section 5, it is shown how exactly physicalism can be contingent, and the extent to which it is contingent, even though it does not allow the possibility of Extras.

1. The problem of extras and common solutions

The physicalist regarding mentality believes that mental facts are solely dependent on physical facts. If mental properties are physical properties, then this dependence relation amounts to identity. If mental properties are not physical properties, as the non-reductive physicalist believes, then this dependence relation is something weaker than identity. Whatever that weaker relation might be, it would seem to require at least the truth of the following global supervenience thesis:

(S₁) for any possible worlds, w_1 and w_2 , if w_1 and w_2 are physical duplicates, then w_1 and w_2 are mental duplicates.

"Duplicates" is used here to indicate not only the same distribution of properties, including relations, but also sameness in terms of the *laws* of nature that obtain. So a physical duplicate of the actual world has the same distribution of physical properties and relations as that which actually obtains, as well as all the same physical laws. The appeal to physical laws is crucial for two reasons. Firstly, assuming that mental properties are not identical with physical properties, the way the world is mentally does not depend only on the distribution of physical properties. It also depends on the physical laws that actually obtain, for if mental properties are not physical, then the same physical phenomena might give rise to different mental phenomena in a world with different physical laws. Secondly, if the physical details secured the mental facts only with the help of *irreducibly psycho-physical* laws, then the mental condition of the world would depend on more than the way the world is physically. To ensure that mentality is wholly dependent on the way the world is physically, the purely physical laws together with the distribution of physical properties should fix the distribution of mental properties.^{1,2}

Also note that the necessity meant to be expressed by S₁ is not logical or conceptual but *metaphysical* necessity. The problem of Extras is an issue regarding what physicalism as an *ontological* doctrine entails. In wondering whether the actual truth of physicalism allows the possibility of Extras we are trying to decide what the physical facts themselves necessitate, not merely what the laws of logic or our physical concepts require. Therefore, in the following discussion, talk of possibility and necessity is meant to denote the metaphysical variety.³

It is doubtful that S₁ is *sufficient* for the truth of physicalism regarding mentality. As Kim (1993, 165–9) warned, merely stating that mental properties covary with physical properties leaves the nature of the covariance unexplained, thereby allowing that mentality is not related to physical phenomena in any way a physicalist would expect, e.g. with mental episodes occurring in immaterial souls. However, it is arguable that S₁ or some similar supervenience thesis is *necessary* for the truth of physicalism, for if mentality depends entirely on physical phenomena, as physicalism requires, then it seems that a difference in mental facts requires some difference in physical facts. That is why even

physicalists who replace talk of supervenience with the notion of *realization* (Melnyk 2003, 2006) or *constitution* (Pereboom 2011) retain the physicalist intuition made explicit by S_1 that the physical condition of the world somehow necessitates the way the world is mentally.⁴

However, many who claim to be physicalists reject S_1 due to what is called “the problem of Extras”. To quote Lewis again: “Materialism is meant to be a contingent thesis, a merit of our world that not all other worlds share” (1983, 362). Even if all concrete phenomena are ultimately purely physical, it seems that things did not have to be that way. The world could have been such that angels, ghosts, or spirits with mental properties reside alongside all of the physical items that actually do exist. It seems, moreover, that in some of these worlds with Extras all of the actual physical laws obtain; all that is required is that the Extras do not causally interfere with any of the physical laws. “In such worlds”, Horgan writes, “the spirits would not interfere with the ordinary operations of physical laws upon physical substances; they would simply co-exist with the physical” (1982, 35). Horgan, Lewis, and others have concluded that the actual truth of physicalism allows Extras in possible worlds that are completely physically indistinguishable from the actual world.⁵

Suppose we accept the “Extras Thesis (ET)” and believe that

(ET) the actual truth of physicalism is compatible with possible worlds that physically duplicate the actual world in every respect while also containing Extras.

Then as physicalists we would need to replace S_1 with a weaker supervenience thesis. The solution that has been employed is to restrict the class of worlds whose physical sameness guarantees mental sameness. For instance, Horgan’s (1982) restriction is to *physically accessible* worlds, or *P-worlds*, where a P-world is a possible world in which “all entities are, or are fully decomposable into, entities whose specific natural kinds are actual-world natural kinds” and “all fundamental microphysical properties are properties explicitly cited in the laws of actual-world microphysics” (36).⁶ Lewis (1983) relies on the notion of a property’s being “alien” to a world:

a property is *alien* to a world iff (1) it is not instantiated by any inhabitant of that world, and (2) it is not analysable as a conjunction of, or as a structural property constructed out of, natural properties all of which are instantiated by inhabitants of that world. (364)

With the notion of an alien property, Lewis proposes that “[a]mong worlds where no natural properties alien to our world are instantiated, no two differ without differing physically” (364). In a world with Extras, not all items are decomposable into the stuff of physics, and some items (the Extras) bear properties (including the property of being wholly non-physical) that are alien to our world. So by endorsing either Horgan’s restriction or Lewis’, one allows that ET is true.

There is also Jackson’s famous way of restricting the class of physically possible worlds that must be the same non-physically. Jackson defines a “minimal” physical duplicate of the actual world as what you get if you duplicate the actual world physically (in every respect, including all the same physical laws) and then you *stop right there*. With the notion of a minimal physical duplicate, Jackson proposes that we characterize physicalism as the view that “[a]ny world which is a *minimal* physical duplicate of our world is a duplicate *simpliciter* of our world” (1998, 12). This definition of “physicalism” allows that a physical duplicate of our world does not duplicate our world in every respect; it can contain spooky additions, provided it is not a minimal physical duplicate of our world.⁷

In the passages quoted above, Horgan, Lewis, and Jackson are concerned with characterizing physicalism as a general thesis, the view that all non-physical concrete facts are grounded wholly in the physical facts. Of course, their proposals also show how to characterize physicalism about mentality in particular. Suppose we restrict S_1 in one of the ways suggested above, claiming that *in all worlds of some restricted class*, physical duplication entails mental duplication. Then we have a supervenience thesis of the form

(S_2) for any possible worlds, w_1 and w_2 , if w_1 and w_2 are physical duplicates and *R-related to the actual world*, then w_1 and w_2 are mental duplicates,

where being *R-related to the actual world* might be understood in terms of being a minimal physical duplicate of the actual world (Jackson), or being a world where no properties alien to the actual world are exemplified (Lewis), or being a world with no entities that are not fully decomposable into actual world natural kinds (Horgan).

I shall ignore whatever specific problems arise for each of these versions of S_2 .⁸ Instead, I argue that all attempts to restrict a supervenience thesis to allow the possibility of Extras are unacceptable and for the same reason. The reason is that ET is false.

2. Extras and their impossibility

In describing the commitments of physicalism, the creation metaphor has often been employed.⁹ As Crane describes,

IN THE BEGINNING God created the elementary particles. Bosons, electrons, protons, quarks and the rest he created them. And they were without form and void, so God created the fundamental laws of physics – the laws of mechanics, electromagnetism, thermodynamics and the rest – and assigned values to the fundamental physical constants: the gravitational constant, the speed of light, Plank’s constant and the rest. God then set the Universe in motion. And God looked at what he had done, and saw that it was physicalistically acceptable. (1991, 235)

According to the physicalist, after producing all of these physical facts God had nothing else to do to make the world complete. All was set for the world being non-physically, including mentally, just the way it is. This is only metaphor, of course, for if physicalism is true, then the God imagined does not exist. The point of the creation scenario is merely to highlight the fact that with physicalism, once the physical facts are fixed, so are all other concrete facts.¹⁰

In the creation scenario, it would seem that after all the physical facts were set, God could have decided to add an Extra or two. Extras were not in fact added, assuming physicalism is true. Yet, there is the intuition that they might have been added, and this is what makes it seem that ET is true. As Leuenberger puts it, “what God could have done after day six ought not to bear on the question whether our world is physicalistic” (2008, 147).

But is ET really true? Why should we think that it is true? One possible motive for accepting ET is the idea that

(a) the necessitation of the actual mental facts (by the way the world is physically) is not threatened by the possibility of *additional* mental phenomena.

The necessitation of the actual mental facts by the way the world is physically prevents the possibility of worlds that are physically indistinguishable from the actual world while

lacking some of the mental facts that actually obtain. But the worlds we are imagining are not like that. In these worlds *no mentality is taken away* from what actually exists, which makes it appear, as (a) states, that the necessitation of the actual mental facts remains intact. That is why it seems compatible with the actual truth of physicalism that God could have added a soul or two after the day of rest. That God could have done so, it seems, does nothing to affect whether the mentality that actually does obtain is fixed by the physical facts.

While (a) might be a reason to accept ET, it is not a good reason, since at least as stated (a) is clearly false. Consider the actual mental fact that *there are no disembodied minds*, the fact that there are no minds that are not physically realized. Suppose that this fact does not obtain in world β even though β physically duplicates the actual world in all respects and without remainder. If β really were possible, then there would be an actual mental fact (that no minds are disembodied) that is not necessitated by the physical facts. Therefore, contrary to (a), additional mental phenomena in other possible worlds can affect the necessitation of actual mental facts.

Moreover, (a)'s being false gives reason to reject ET. One does not qualify as a physicalist regarding mentality without believing either that mental properties are physical properties or that while non-physical, their exemplification depends solely on the exemplification of physical properties. Suppose that mental properties are identical with physical properties. Then given the necessity of identity, mental properties are identical with physical properties at all possible worlds. In that case, all mentality is necessarily instantiated physically, contrary to ET. Suppose, on the other hand, that the non-reductive physicalist is correct. Suppose that mental properties are not themselves physical properties, but that mentality nonetheless depends entirely on physical phenomena. In that case, the fact that all minds are embodied (physically realized) would be solely a function of the physical facts (where the physical facts include all of the facts about the instantiation of physical properties and relations and all of the physical laws that obtain). However, if there were Extras in some physical duplicate of the actual world, then this would not be the case. The fact that all minds are embodied would not be solely a function of the way the world is physically since all the actual physical facts obtain in the Extras world we are imagining. It seems, then, that if we accept ET, we forfeit not only reductive physicalism, but physicalism altogether.¹¹

Recall the creation metaphor once again. If physicalism is true, then after producing all of the physical facts God did not have anything else to do to make the world complete. All was set for the world being non-physically, including mentally, just the way it is. However, if there are possible worlds that are physically indistinguishable from the actual world while also containing Extras, then fixing the physical facts did not fix the mental facts. The world could have had Extras *despite the way it is physically*. This does not seem consistent with physicalism. We would expect that if physicalism really is true, then by fixing all the physical facts, God did all it took to guarantee that all mentality is embodied.

However, it might be insisted that physicalism does not require the necessitation of *all* mental facts. According to Chalmers (1996), what physicalism requires is the necessitation of *positive* mental facts, where "a positive fact in W" is defined "as one that holds in every world that contains W as a proper part" (40). Whether this is an adequate definition of a positive fact is not crucial here; let us assume for the sake of argument that it is adequate. On this definition, the fact that all minds are embodied qualifies as a negative fact. So in support of ET, one might propose with Chalmers that

(b) physicalism does not require the necessitation (by the physical facts) of negative mental facts, but only positive mental facts.¹²

Then we can revise (a) to read

(a*) the necessitation of the actual *positive* mental facts (by the way the world is physically) is not threatened by the possibility of additional mental phenomena,

which together with (b) yields ET.

It does seem that (a*) is true, at least on Chalmers' construal of positive facts. But now the question is: Why should we accept (b)? Why should we think that physicalism does not require the necessitation of negative mental facts? The belief that physicalism is a contingent thesis might be one possible motive for accepting (b), since allowing Extras in some physical duplicate of the actual world is an easy way to ensure that physicalism is contingent. However, one can consistently believe that physicalism is contingent while rejecting (b). We can reject (b) and still allow that Extras exist in some metaphysically possible worlds, and therefore that physicalism could have been false. We can do so simply by requiring that these worlds with Extras physically differ in some way from the actual world.

So the contingency of physicalism is not reason enough to accept (b). There is, moreover, a good reason to reject (b). Suppose that x_1, x_2, \dots, x_n are all of the individual minds that exist. Also suppose it is a fact that each of these minds is embodied (physically realized). There is the conjunctive fact that mind x_1 is embodied, mind x_2 is embodied, \dots , and mind x_n is embodied. This conjunctive fact is a positive mental fact, and any physicalist would agree that it is made true entirely by the physical facts that obtain. But consider the additional fact that *there are no minds other than the embodied ones*. Since this is a negative fact, it would not be necessitated by the physical facts if (b) were true. This lack of necessitation might seem acceptable from a physicalist point of view, but we should note that the negative mental fact would also be *wholly independent* of the physical facts if (b) were true. For while the physical facts do make it the case that minds $x_1 - x_n$ are embodied, they would not make any difference at all, if (b) were true, to whether there are any minds other than the embodied ones. The same physical facts might obtain whether or not there are any disembodied minds if (b) were true. Granted, there being no minds other than the embodied ones is a negative fact, but it is still a mental fact and it would seem that allowing any mental fact, positive or negative, to be *wholly independent* of the physical facts is enough to disqualify one from being a physicalist regarding mentality. As physicalists we would expect that there being no minds other than the embodied ones should have at least something to do with the physical structure and details of the world.

There are other implausible consequences of (b)'s being true. If the negative mental facts were not necessitated by the physical facts, then the world could have had ghosts, spirits, and souls, and countless many, even with all of the physical facts remaining exactly the same. Therefore, if (b) were true, the world could have been *vastly* different mentally while staying exactly the same physically. But the possibility of being vastly different mentally while exactly the same physically appears to be far more underdetermination of the mental by the physical than any physicalist should be willing to allow. This possibility, it seems, takes us far too astray of the original motivation for endorsing a supervenience thesis – which is to support the belief that the mental is dependent on the physical. Furthermore, if the world could have had lots of ghosts and spirits while staying exactly the same physically, then it seems there would be no good reason to deny that such entities might actually appear at any moment. If (b) were true, then the totality of past and present physical facts would do nothing to prevent spooky mental additions. So it seems that if (b) were true, no amount of knowledge regarding the physical details of the world could provide any confidence that a massive emergence of ghosts and spirits will not

occur at any moment. This epistemic consequence is implausible from a physicalist point of view, for as a physicalist one would think that the physical condition of the world *constrains* mentality, which includes preventing a sudden and massive emergence of Extras.

If these reasons fail to convince one that (b) is false, and therefore that ET is false as well, more evidence is offered in the next section.

3. Extra property-instances

So far we have been considering angels, spirits, souls, and other non-physical substances, at physical duplicates of the actual world. Even if one agrees with me that the possibility of these is inconsistent with physicalism, one might still wonder whether physicalism allows additional mental *property-instances* (additional mental events/processes) at physical duplicates of the actual world. After all, the possibility of additional mental events, even if realized in physical substances, is enough to violate the unrestricted supervenience claim S_1 . On the other hand, if it can be shown that not even additional property-instances (at physically indistinguishable worlds) are compatible with physicalism, then we would have further reason to think that (b) and ET are false.

Witmer has us imagine that in world w_E ,

the same physical conditions obtain, and they necessitate the same pattern of nonphysical properties. In addition, however, there is some nonphysical property M such that it is instanced in w_E without being necessitated by any physical conditions. It is attached to a handful of individuals without any deeper explanation; this instantiation of M is a brute fact. (1999, 321)

There are no Extras in w_E – no irreducibly mental substances. There is only an additional instance of some mental property instantiated in a physical object. Let us suppose that in w_E some beer bottle has a pain sensation. Witmer contends that despite the additional property-instance, physicalists should allow the possibility (though, of course, not the actuality) of w_E since the “phenomena in the actual world for which the physicalist thinks physical conditions suffice are in fact necessitated in w_E ; that necessitation is not blocked by the addition” of a mental episode in w_E (321).

Take any actual mental fact for which the physical conditions suffice. The mere presence of an additional mental occurrence in another world, Witmer claims, does nothing to block the necessitation of the actual mental fact by the physical conditions. However, Witmer is right about this only where the mental fact is a positive fact. Consider the negative fact that the nearest beer bottle – call it “Bud” – does not feel pain. There are possible worlds with either a vastly different distribution of physical properties or different physical laws at which this negative fact does not obtain, worlds physically different enough that the typical beer bottle does feel pain. But w_E is not a world like that; w_E is supposed to be exactly the same as the actual world in all physical respects, the same distribution of physical properties/relations and all the same physical laws. As physicalists we would expect that there is something about the physical structure of actual beer bottles which together with the physical laws prevents them, and Bud in particular, from feeling pain. It is not that Bud just so happens to lack pain, or that there might be physically indistinguishable pain-feeling beer bottles in the near future. Rather, we think, the physical condition of the world guarantees that Bud lacks pain. So here it seems we have a negative mental fact (that Bud lacks pain) that we would expect to be necessitated by the physical facts if we accept physicalism.

One might argue that additional property-instances in beer bottles at physically indistinguishable worlds are impossible simply because beer bottles are entirely physically

unequipped for any sort of mentality. With items already suited for mental states, it might be thought, additional property-instances in physically indistinguishable worlds are not so clearly ruled out by physicalism. So let us change the example to the case of Felicity, a human being fully capable of mental states but who is actually not happy at all. Suppose, also, that Felicity is happy at w_E even though w_E is physically indistinguishable from the actual world. Is it reasonable to think that this case is compatible with physicalism?

Since Felicity is capable of happiness, there is a possible world at which she is happy. However, our physicalist intuitions tell us that any world at which she is happy is one that physically differs in some way from the actual world given that she is not actually happy. Assuming that the physical laws are the same as those that actually obtain, we would expect at the very least that something about her is physically different (different brain states perhaps). It seems that a physically indistinguishable Felicity in a physically indistinguishable world would not be happy if actual Felicity were not happy. Again, we have a negative mental fact – that Felicity is not happy – that we would expect to be necessitated by the physical facts given the truth of physicalism.¹³

So it does seem that (b) is false. The truth of physicalism seems to require the necessitation of negative mental facts as well as positive mental facts. However, one might argue that physicalism does not require the necessitation of all negative mental facts. Negative facts regarding the lack of mental states by particular individuals (that Bud lacks pain, and that Felicity lacks happiness) are necessitated by the physical facts, but one might think, negative facts of the universal variety (e.g. all minds are embodied) are not necessitated by the physical facts. If this is correct, then one can accept my points above about the necessitation of Bud's lacking pain and Felicity's not being happy, and thereby reject (b), while continuing to accept ET.

However, it is not clear why one should think that facts regarding the lack of mental states by particular individuals are necessitated by the physical facts while negative mental facts of the universal variety are not. Why do we believe that Bud, the beer bottle, lacks pain in a physical duplicate of the actual world? That is because we believe that there is something about the physical structure of beer bottles (standard beer bottles like Bud) which together with the physical laws prevents all of them from feeling pain. Likewise, a physically indistinguishable Felicity in a physically indistinguishable world lacks happiness, we think, because the actual world is physically such that any individual physically comprised in exactly the same way is guaranteed to lack happiness. Or so our physicalist intuitions would seem to entail. It would seem, then, that physicalism does require the necessitation of universal negative facts, which is reason to reject ET.

In Section 5, I consider another possible (and inadequate) motive for accepting ET that we have not yet addressed. Considering this motive will help us see more clearly to what extent physicalism is contingent. However, I would first like to briefly mention how the reasons I offered so far for rejecting ET help us avoid a potential threat to physicalism from what Hawthorne calls "Blockers".

4. A note on blockers

Extras are mere "add-ons": we take the actual world exactly as it is physically and simply add some mental items without disrupting any physical phenomena. These possible add-ons make room for Blockers. Hawthorne has us imagine

the relationship between A-facts and B-facts to be strong but not quite so strong as to hold of metaphysical necessity. In particular, let us suppose there to be just enough slack between

A-facts and B-facts as to allow some immaterial entity to suspend the emergence of B-facts from A-facts. (2002, 103)

Imagine a possible world that is physically indistinguishable from the actual world, but at this world a Blocker is present – an immaterial entity whose presence prevents an actual instance of some mental property from occurring.

With Blockers not only is something mental added, but something mental is *taken away* while everything remains the same physically. This seems to be a clear violation of the necessitation of the mental by the physical that any physicalist would wish to require. As Hawthorne reports,

[i]f the connection between brains and pains is as the materialist imagines, then a hyper-powerful being could no more suspend pain while permitting the relevant brain states than she could suspend the beauty of a painting while leaving the oils untouched. (105)

It is especially hard to imagine, from a physicalist point of view, how Blockers could prevent actual mental episodes without disrupting the physical details or physical laws on which they depend.¹⁴

Hawthorne thinks that the possibility of Blockers is a threat to physicalism, for once we restrict a supervenience claim to make room for Extras, we risk allowing the Blockers that physicalism seems to prohibit. Recall the proposals of Horgan, Lewis, and Jackson (instances of S_2). Since Blockers are not decomposable into actual world natural kinds, are alien to the actual world, and are not present at minimal physical duplicates of the actual world, Blocker scenarios fall outside the scope of their accounts, which means that their accounts allow as much mental blockage as one wishes. So their way of restricting S_1 to allow the possibility of Extras yields the possibility of Blockers that seems incompatible with physicalism. Hawthorne concludes that Blockers are a threat to physicalism.¹⁵

In response to Hawthorne's challenge, a physicalist might argue that there is some principled reason to think that physicalism allows the possibility of Extras without allowing the possibility of Blockers. Or one might argue that physicalism is consistent with the possibility of Blockers after all.¹⁶ Better yet, we can resist the idea that physicalism allows Extras (as done here) and avoid the threat of Blockers altogether.

5. The contingency of physicalism

It does seem reasonable to think that physicalism is contingent. While Extras do not exist, it seems they are not impossible. However, as noted earlier, acknowledging that physicalism is contingent does not require accepting (b) or ET. We can grant that it is possible for disembodied spirits to exist, and therefore that physicalism is false in some possible worlds, while rejecting both (b) and ET; we can do so simply by insisting that these worlds with disembodied spirits physically differ in some way from the actual world.

However, there is another reason for accepting ET related to the contingency of physicalism that we have not yet considered. Part of what makes it tempting to think that physicalism is contingent is the intuition that while the mental condition of the world is necessitated by the way the world is physically, things could have been otherwise. That is,

(c) the mental condition of the world need not have been necessitated by the physical facts.

The original supervenience thesis, S_1 , is incompatible with (c). Recall that according to S_1 *any* possible worlds that are physical duplicates are also mental duplicates. So according to S_1 , at *every* possible world with mentality, the mental facts are necessitated by the physical facts.

One easy way to acknowledge (c) is to replace S_1 with a supervenience thesis of form S_2 . Recall:

S_2 : for any possible worlds, w_1 and w_2 , if w_1 and w_2 are physical duplicates and *R-related to the actual world*, then w_1 and w_2 are mental duplicates.

Unlike S_1 , S_2 allows that some worlds are physically the same while differing mentally, provided that at least one of them is not *R-related to the actual world*. Therefore, S_2 is compatible with (c). Moreover, S_2 is compatible with (c) in a way that allows worlds physically the same as the actual world but with Extras, provided those worlds are not *R-related to the actual world*. So it is not hard to see why the belief that (c) is true may have been a motive for some (i.e. those who accept S_2) to endorse ET.

However, one need not accept S_2 to acknowledge (c). The following simpler revision of S_1 suffices:

S_3 : for any possible world, w , if *w physically duplicates the actual world*, then w mentally duplicates the actual world,

where “physically duplicates” is used as before to include the duplication of all the physical laws. Suppose that world β physically differs from the actual world, either with a different distribution of physical properties/relations or with different physical laws. S_3 allows that there is another possible world, γ , physically indistinguishable from β in every respect but with a different distribution of mental properties. Therefore, like S_2 , S_3 allows that there are worlds at which mentality is not fixed by the way the world is physically. Yet, unlike S_2 , S_3 precludes Extras at worlds physically indistinguishable from the actual world. Thus, with S_3 we can consistently accept (c) while denying ET.¹⁷

6. Recap

The physicalist regarding mentality believes that mental facts are wholly dependent on physical facts. While this dependence relation might be short of identity (assuming the coherence of non-reductive physicalism), it seems the relation would at least demand that a difference in mental facts requires some difference in physical facts. This idea has often been expressed with a supervenience thesis. Even those physicalists who downplay the supervenience lingo and speak instead in terms of realization, constitution, or grounding generally believe that the physical condition of the world at a time necessitates the mental condition of the world at that time. This synchronic necessitation of the mental by the physical seems to be what anyone deserving the label “physicalist” should demand, and this necessitation, if unrestricted, prevents the possibility of Extras at worlds physically indistinguishable from the actual world.

One might think that the possibility of Extras is compatible with the actual truth of physicalism based on the assumption that

(b) physicalism does not require the necessitation (by the physical facts) of negative mental facts, but only positive mental facts.

If physicalism does not require that physical facts necessitate negative mental facts, then it does not require that they necessitate the fact that *all minds are embodied* (given Chalmers’

account of negative facts). And if physicalism does not require physical facts necessitating that all minds are embodied, then ET is true. However, reasons were offered in Section 2 for thinking that (b) is false. If (b) were true, then the fact that there are no disembodied minds would not be wholly dependent on the physical facts. Moreover, this negative fact would be *wholly independent* of the physical facts if (b) were true. For while the physical facts do make it the case that minds $x_1 - x_n$ are embodied, they would make no difference at all, if (b) were true, to whether there are any minds other than the embodied ones, since the same physical facts might obtain in either case. That there are no minds other than the embodied ones is a negative fact, but it is still a mental fact and it seems that allowing any mental fact, positive or negative, to be *wholly independent* of the physical facts is enough forfeit the title “physicalist”.

Also, if negative facts were not necessitated by the physical facts, then the world could have had countless ghosts, spirits, and angels, even with all the physical facts exactly the same. This would be a massive mental difference without any physical difference, which seems to be far more underdetermination of the mental by the physical than any physicalist would want to allow. There is also the point that if (b) were true, then no amount of knowledge regarding the physical structure of the world could provide any confidence that the massive emergence of ghosts and spirits will not actually occur at any moment. This epistemic consequence is implausible from a physicalist point of view, for as a physicalist one would think that the physical condition of the world constrains mentality, which seems to include preventing a sudden, massive emergence of non-physical substances.

Another reason for thinking that (b) and ET are false was offered in Section 3 where we considered the possibility of additional mental property-instances without any immaterial substances. As physicalists we would expect that there is something about the physical structure of actual beer bottles, and beer bottle “Bud” in particular, which together with the physical laws prevents them from feeling pain. Also, if Felicity is actually not happy, our physicalist intuitions tell us that a world at which she is happy is one that physically differs in some way from the actual world. It seems clear in these cases that if physicalism is true, then the negative facts that Bud lacks pain and Felicity is not happy are necessitated by the physical facts, contrary to (b). Moreover, the belief that these negative mental facts are necessitated by the physical facts would seem to rely on the belief that negative mental facts of the universal variety (e.g. the fact that all beer bottles lack pain) are necessitated by the physical facts, which is reason to think that ET is false.

If (b) and ET are false, one wonders why many have thought otherwise. One motivation is the plausible belief that physicalism is contingent. Yet, as indicated above, the falsity of (b) and ET is perfectly compatible with the contingency of physicalism. A physicalist can easily acknowledge the possibility of Extras in worlds that physically differ from the actual world. Although, it does seem that S_1 grants a bit less contingency than we might expect of physicalism. It is quite plausible to believe that while the physical facts actually do necessitate the mental facts, this need not have been the case. It seems the world might have been such that the physical facts did not necessitate the mental facts. This intuition might be a large part of what motivates ET. It was shown, however, that this intuition is easily captured by restricting a global supervenience thesis to worlds that physically duplicate the actual world, which does not require accepting ET.

So in deciding which set of conditions best captures the content of physicalism, we should avoid any that allows the possibility of Extras in worlds that physically duplicate the actual world. And it seems we can do this while granting as much contingency to physicalism as any physicalist should want.

Notes

1. The problem of Extras is designed to show not that physically indistinguishable *individuals* can differ mentally, but that physically indistinguishable *worlds* can differ mentally. That is why the emphasis here is on global rather than local supervenience.
2. There are different varieties of global supervenience. Stalnaker (1996) and McLaughlin (1997) distinguish between strong and weak global supervenience. Consider any two possible worlds, w_1 and w_2 , and a one–one mapping of each item x in w_1 onto some item y in w_2 . This isomorphism is ϕ -preserving for some class of properties, ϕ , just in case for every property F in ϕ , Fx in w_1 just in case Fy in w_2 . With the notion of a ϕ -preserving isomorphism, a class of properties, A , is said to supervene on a class of properties, B , in the *strong global* sense just in case for any w_1 and w_2 , every B -preserving isomorphism between w_1 and w_2 is an A -preserving isomorphism between them. A supervenes on B in the *weak global* sense just in case for any w_1 and w_2 , if there is a B -preserving isomorphism between w_1 and w_2 , then there is an A -preserving isomorphism between them. Bennett (2004) adds a middling variety, which obtains just in case for any w_1 and w_2 , if there is a B -preserving isomorphism between them, then at least one B -preserving isomorphism between them is itself an A -preserving isomorphism; Bennett also shows that the weak variety falls far short of capturing the sort of determination required by our ordinary notion of global supervenience. I leave it open whether the intermediate variety, or the strong, or some other version (Leuenberger's 2009 discussion being relevant here) best captures the ordinary notion of global supervenience, since nothing in the following discussion hinges on this issue.
3. The ontological physicalist can consistently believe (with Kirk 2006) that the physical facts logically/conceptually necessitate the mental facts. However, as an ontological physicalist one need not (and arguably should not) believe that.
4. Melnyk proposes that “token y of a functional type, F , is *physically realized* iff (i) y is realized ... by a token of some physical type, T ; and (ii) T meets the special associated condition for F solely as a logical consequence of (a) the distribution in the world of physical tokens and (b) the holding of physical laws (2006, 130–1)”. This fixing of the higher-level facts by the physical facts is clearly what supervenience claims are designed to report. And one condition in Pereboom's analysis of x *materially constituting* y is “necessarily, if x exists and is in D at t , then y exists at t and is made up of and materially coincident with x at t ” (2011, 140), where D might be the physical features of x on which the distinctive higher-level features of y supervene. Also note that those who advocate some irreducible notion of *grounding* generally accept the necessity thesis that if one set of facts grounds another, then necessarily if the former obtains, the latter also obtains. See, for example, Correia (2011, 6) and Rosen (2010, 118); and see Fine (2011, 7–8), who replaces talk of necessitation with “relevant verification”.
5. To ensure that the actual physical facts are the same, the Extras we are imagining do not interfere in any way with the operations of the physical world. This assumes that the capacity to interact with the physical world (for instance, to cause the right sort of behaviour) is not essential to mentality. Whether this assumption is correct is an idea I shall here leave entirely open. What I will argue is that even if there could be Extras in physically indistinguishable worlds (and therefore Extras that do not disrupt the physical details), this possibility is not consistent with physicalism.
6. With the notion of a P-world, Horgan offers a *local* supervenience principle: “[t]here do not exist any two P-regions which are exactly alike in all qualitative intrinsic microphysical features but different in some other qualitative intrinsic feature” (1982, 37).
7. See also Jackson's (1994, 28) presentation of this idea. In the same spirit, Chalmers (1996, 39) characterizes physicalism with an “at least clause” requiring that “*at least* the B-facts true in our world are true in all physically identical worlds”.
8. See, for example, Witmer's (1999, 321–4) objections to Lewis' proposal. Also see how Witmer (325–9) renders Jackson's appeal to minimal physical duplicates more precise.
9. Kripke introduces the creation metaphor (1972, 340–1) while arguing against the identity of pain and C-fiber stimulation.
10. Apart from the God issue, the creation metaphor might mislead by implying that for the physicalist the initial physical condition of the world determined the rise of mentality and the world's current mental condition. Physicalists clearly need not accept the *diachronic* necessitation of the mental by the physical, since they need not even accept diachronic physical–physical necessitation (the necessitation of the physical state of the universe at one time by its physical

- state at a previous time). The point of the metaphor is that for the physicalist, the complete physical condition of the world at any time necessitates the total condition of the world *at that time*.
11. The universal nature of the fact that all minds are embodied is not itself a reason to deny its necessitation, for there are always universal physical facts, which include the physical laws, to help metaphysically necessitate the universal higher-level facts.
 12. Chalmers adds the restriction to *positive* supervening facts in part to allow the possibility of worlds that physically duplicate the actual world without duplicating, for instance, the actual negative fact that *no ghosts are present*. Likewise, Melnyk (2003, 26) restricts the domain of quantification of his realization physicalism to tokens that are not of types “partially constituted by absences” – types such as “*kind of entity such that every actual member of the kind is physically realized*”, whose tokens exist partly in virtue of the non-existence of ectoplasm that serves as a realizer of the kind.
 13. The following concern was brought to my attention by one of the referees for *Philosophical Explorations*. It might be thought that a physically indistinguishable Felicity in a physically indistinguishable world will lack happiness, not because the physical facts necessitate negative mental facts, but because the physical facts necessitate the positive mental fact that Felicity is in some particular mood *X*, and *X* is incompatible with happiness just as being red all over is incompatible with being green all over (or any other determinate of a single determinable excludes others). If the case were like this, then it would not be the physical facts themselves that necessitate Felicity’s lack of happiness, and so (b) would not be threatened. However, we need not suppose the case is quite like that. Let’s suppose that Felicity is not in any mood that excludes happiness in the way that being red all over excludes being green all over. It seems to me that our physicalist intuitions would still entail that any world where Felicity is happy physically differs from the actual world.
 14. Thanks to one of the referees for bringing this point about physical interference to my attention.
 15. If we follow Chalmers and characterize physicalism in terms of positive facts, then we get the intuitively correct result that physicalism prevents the possibility of the Blockers Hawthorne initially describes. But, Hawthorne notes, Chalmers’ characterization of physicalism does not preclude cases in which “only certain mental phenomena – call them *M*’s – are blockable, that Blockers exist, and that all (or some of) the *M*’s that would otherwise have occurred are blocked” (2002, 108–9). Let us also suppose that the Blockers have no mental properties of their own. In this case, any world that physically duplicates the actual world will also have all the *positive* mental facts obtaining at the actual world. So Chalmers’ definition gives the implausible result that physicalism is actually true in this case.
 16. Leuenberger (2008) concedes that physicalism is compatible with the possibility of Blockers, and proposes what he calls “*ceteris absentibus* physicalism”, according to which, “[t]he actual physical facts are *ceteris absentibus* sufficient for all actual facts” (148). On this account, if a world physically duplicates the actual world, then *other things being absent* (which includes no Blockers) it mentally duplicates the actual world.
 17. Levine and Trogon (2009) question the contingency of physicalism. They characterize “materialism” as the thesis that “only non-mental properties are instantiated in a basic way; all mental properties are instantiated by being realized by the instantiation of other non-mental properties” (356). Given that causal role properties are non-basic properties and essentially so (essentially realized by the instantiation of other properties, physical properties, playing the definitive causal roles), they contend that mental properties are essentially non-basic, and with their definition of materialism, they conclude that materialism is true in all possible worlds. Yet, their definition of materialism is dubious since (as they realize, 356–7) it allows materialist worlds in which mental properties are realized by ectoplasmic features, provided that these ectoplasmic features are non-mental.

Notes on Contributor

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