

ARTICLE

## Physicalism UnBlocked

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### Abstract

What has become known as *the blockers problem* is an alleged difficulty facing attempts to formulate physicalism as a supervenience thesis. A blocker is an entity, itself contrary to physicalism, with the power to disrupt an otherwise necessary connection between physical and nonphysical conditions. I argue that there is no distinct blockers problem. Insofar as a problem can be identified, it turns out to be just a rather baroque version of a distinct and familiar objection to supervenience formulations and to be of no independent interest. Work on the formulation of physicalism can thus proceed without worrying about blockers.

**Keywords:** Blockers; grounding; metaphysics; necessity; physicalism; supervenience

Not all that long ago, *supervenience* seemed to be the key to formulating physicalism. Few now think, however, that any supervenience claim can serve as an adequate expression of physicalism. While more than one argument has been given for this verdict, the most important of these rest on pointing out that supervenience, by itself, is just a *modal* claim: necessarily, if the physical facts are thus and so, then all the facts are thus and so. This by itself does not guarantee that the mental, biological, and other aspects of the world are to be explained as nothing over and above the physical aspects of the world, which claim is essential to the physicalist idea. Call this the *merely modal* objection to supervenience formulations (Horgan 1993; Kim 1993; Melnyk 2003, chap. 2).

My aim in this paper is not to criticize the merely modal objection, which I think successful. My aim, rather, is to examine one of the *other* reasons sometimes given for rejecting the attempt to formulate physicalism as a supervenience thesis, namely, what is now called *the blockers problem*.

In “Blocking Definitions of Physicalism” (2002), John Hawthorne introduced the idea of a *blocker*—some entity, itself contrary to physicalism, that, if present, would prevent (block) some physical conditions from necessitating some nonphysical property they would otherwise necessitate. The possibility of such blockers seems to show that some of the more influential global supervenience formulations could be true even while physicalism is false. Even though enthusiasm for such formulations has mostly disappeared, interest in blockers has persisted, perhaps because of the idea (advanced by Stephan Leuenberger, 2008) that the possibility of blockers is not actually a threat to physicalism in the first place. Over time, the topic has grown substantial enough to warrant its own subsection in the *Stanford Encyclopedia of Philosophy* entry on physicalism (Stoljar 2017).<sup>1</sup> One might say that while blockers have not occasioned any major results, they remain for physicalists a kind of stumbling block—bad pun fully intended.

<sup>1</sup>Some places in which blockers have been discussed include Stoljar (2010), Leuenberger (2014), Francescotti (2014), Blumson and Tang (2015), and O’Conaill (2018). The topic has even made an appearance in the Wikipedia article on physicalism as retrieved on November 14, 2019 ([en.wikipedia.org/wiki/Physicalism](https://en.wikipedia.org/wiki/Physicalism)).

I argue, however, that there is no blockers problem—or, rather, there is no *distinct* blockers problem. Insofar as a legitimate challenge to supervenience formulations can be found in the notion of blockers, the problem is *subsumed* under the merely modal objection—a particularly baroque version thereof, to be sure, but of no new significance. As a result, we can quit worrying about blockers as a distinct issue in the formulation of physicalism.

The paper divides into three main sections. In [section 1](#), I set out key details of the blockers problem, focusing on the distinction between *innocent* and *troublesome* blockers. Only the latter sort can falsify physicalism, but—as I argue in [section 2](#)—it turns out to be harder than one might think to conceive clearly of troublesome blockers. In light of that difficulty, we need take more care in how we understand the innocent/troublesome distinction. In [section 3](#), I argue that a good account of that distinction shows that the blockers problem is a version of the merely modal objection. A brief section ([section 4](#)) concludes.

## 1. Supervenience, extras, and blockers

### 1.a Extras and minimal physical duplicates

The blockers problem is targeted at supervenience formulations of physicalism, but it is not aimed at *every* such formulation. The formulations at issue are those modified in response to a different, preexisting problem for supervenience formulations, one known as the problem of “epiphenomenal ectoplasm” (Stoljar 2010) or the “problem of extras” (Witmer 1999, Francescotti 2014).

This problem arises from the apparent contingency of physicalism. One natural approach to characterizing physicalism suggests the following global supervenience thesis:

S: Any possible world indiscernible from the actual world with respect to its distribution of physical properties<sup>2</sup> is indiscernible generally from the actual world.

S is too strong a condition to be necessary for physicalism. It rules out possibilities in which conditions contrary to physicalism are simply *added* in an idle way to an otherwise purely physical world. Most physicalists hold that the doctrine is a contingent truth; there could have been things of a sort inconsistent with physicalism even if no such things are actual. If those things could simply be tacked on as *extras* to an otherwise purely physical world, S is false. Yet this possibility does nothing to impugn the physicalist credentials of the world lacking such extras. Physicalism is thus compatible with the falsity of S.<sup>3</sup>

If we want a supervenience thesis that is at least necessary for physicalism, we need something weaker than S. Three well-known proposals for such—due to Frank Jackson (1994, 1998), David Lewis (1983), and David Chalmers (1996)—are examined in Hawthorne’s 2002 paper. For reasons of space, I focus exclusively on Jackson’s *minimal physical duplicate* formulation, hereafter MPD:

MPD: Any minimal physical duplicate of the actual world is a duplicate of the actual world in every respect.

A world is a *physical duplicate* of another iff the two are indiscernible with respect to both the instantiation of physical properties and the laws of physics. It is a *minimal physical duplicate* of another iff it is a duplicate thereof *and* contains nothing more than what is needed to attain such indiscernibility. As Jackson likes to put it, if God were to take the physical description of the actual

<sup>2</sup>Here, as elsewhere, I use *property* to include both properties and relations while excluding impure attributes—that is, those that require reference to particulars, such as *being a student of Quine*.

<sup>3</sup>One might hope to circumvent both the problem of extras and the subsequent blockers problem by denying that physicalism is contingent in the first place; see Levine and Trogon (2009) for an important argument for this denial. Another option is to accept the contingency of physicalism but insist that physicalism rules out extras, as argued by Francescotti (2014). Both moves are in my view mistaken, though I lack space here to say why.

world as a recipe and build a world to those specifications and stop right there, adding no further ingredients, that would be a minimal physical duplicate of the actual world.

The appeal of MPD as a replacement for *S* is plain: by excluding from consideration those possible worlds in which add-ons exist, it appears to trim off precisely those implications of *S* that caused trouble. Such worlds seem to be irrelevant to the truth of physicalism, but it is precisely at this point that blockers come into play. In effect, blockers challenge the idea that these nonactual worlds with add-ons are uniformly irrelevant. If the add-on is a blocker of the troublesome sort, then such worlds *are* relevant after all.

### 1.b Blockers and relevant worlds

So what exactly is a blocker? Though the term suggests a two-term relation (blocker and blockee), the relation requires three terms: a condition that necessitates some feature unless the blocker is present, in which case that feature may or may not appear. Let us say that *B blocks F relative to P* and define the relation thus (the modality here is metaphysical necessity and possibility):

- B blocks F relative to P* iff (i) necessarily, for any *x*, if *x* has *P* and does not have *B*, then *x* has *F*;  
 (ii) possibly, some *x* has *P* and *B* and lacks *F*.

Our interest is not in the blocking relation per se but in certain situations in which the relevant kinds of properties stand in that relation. Distinguish three kinds of properties: the *physical*, the *nonphysical*, and the *contraphysical*. As I use *nonphysical*, calling a property nonphysical only means that it is not initially counted as physical when classifying properties as physical or not; it is not “narrowly” physical but might be “broadly” physical in the sense of being related to the narrowly physical in the way the physicalist thinks all instantiated properties are related to such. By contrast, I will use *contraphysical* to classify any property that both fails to be physical and is *incapable* of being related in that way (whatever it is exactly) to the narrowly physical. Blocker properties are going to be contraphysical; in the present discussion, any possible world being evaluated for consistency with physicalism will be one devoid of any instances of a blocker property. The relevance of the blocker property will reside rather in the light it sheds on what is going on in a world where it is *not* instantiated.

Those worlds may be called *blocker-relevant worlds* and be defined thus:

A world *w* is a *blocker-relevant world* iff there exists a physical property *P*, a nonphysical property, and a contraphysical property *B* such that:

- (i) *B blocks F relative to P*;
- (ii) nothing in *w* has *B*;
- (iii) something in *w* has *P*; and
- (iv) any minimal physical duplicate of *w* is a duplicate simpliciter of *w*.

Suppose the actual world is a blocker-relevant world in this sense. Any minimal physical duplicate of the actual world will be one without *B*, since *B* is a contraphysical property. As a result, anything in that duplicate world that has *P* will also have *F*, since *P* necessitates *F* so long as *B* is absent. So far as the pattern of individuals with *P* having *F* goes, then, no difference between that minimal physical duplicate and the actual world will show up. There are, then, possible worlds which meet all four conditions of being a blocker-relevant world.

### 1.c Innocent versus troublesome blockers

The point of blockers is to show that MPD is insufficient for physicalism. If being a blocker-relevant world is itself inconsistent with being a world in which physicalism is true (hereafter, a *physicalist world*), then, since blocker-relevant worlds are possible, MPD is not sufficient for physicalism.

It is plain, however, that being a blocker-relevant world is *not* inconsistent with being a physicalist world.

Hawthorne makes the point using the example of *being a spookless cake*, that is, being a cake that is not accompanied by a spook, where being a spook is a contraphysical property. Let  $C$  be a physical property that suffices for being a cake. A world in which there are no spooks, everything with  $C$  is a cake, and there are spookless cakes may still be a physicalist world. So a world can be blocker-relevant yet still be one in which physicalism is true. Some blockers, then, are “innocent” in the sense that they pose no threat to physicalism.

But there might also, it seems, be “troublesome” blockers. Hawthorne uses the example of pain to prompt the worry. Say that in the actual world, an individual Amy has a bad headache. Let  $H$  be the property of having that kind of headache and  $N$  be some complex physical (perhaps neurological) property Amy instantiates—one that encompasses whatever physical features a physicalist may think relevant to her having  $H$ .<sup>4</sup> If it encompasses all the relevant physical features, a physicalist will presumably say that Amy’s having  $H$  is nothing over and above her having  $N$ .

But now suppose that there is some contraphysical property  $B_{NH}$  that blocks  $H$  relative to  $N$ . We are not supposing  $B_{NH}$  is actually instantiated, only that it *could* be. On the face of it, this possibility disqualifies the actual world from being a physicalist world. Here’s why: from our suppositions, it follows that there is some nonactual world in which someone has both  $N$  and  $B_{NH}$  and lacks  $H$ . As a result, something could have the physical property  $N$  yet still not have  $H$ . This certainly looks to be incompatible with the claim that Amy’s having  $H$  is nothing over and above her having  $N$ .

What makes for the difference between innocent and troublesome blockers? Hawthorne suggests that what matters is whether the blockable property or fact is “positive”:

[I]ntuitively, being a spookless cake is not a positive fact. Intuitively, being [in] pain is a positive fact. What spells trouble for materialism is the following circumstance. Some negative fact having to do with immaterial beings explains some fact about our world that is itself a positive fact. (2002, 108)

Later in this paper I will reexamine this way of capturing the innocent/troublesome distinction. But it is not hard to see its initial appeal. In both the pain and spookless cake cases, something about the lack of a contraphysical entity explains a fact about the actual world. But in the innocent case, the fact about the actual world appears distinctively negative itself; as such, it seems appropriate to explain it by reference to another lack. In the troublesome case, however, the fact being explained—that Amy is in pain—does not appear to concern a lack of things, so the role of a contraphysical entity in explaining it raises suspicions about whether the explained fact is itself consistent with physicalism.

Exactly what suspicions are raised and why are questions I reserve until later when the innocent/troublesome distinction is at center stage. For now, let us rely on an intuitive sense of what makes for trouble and introduce a handy abbreviation. Let us say a world is a *troublesome blocker-relevant world* (or *TBR world*) iff it is a blocker-relevant world such that something about the conditions that make it a blocker-relevant world also make it a world in which physicalism is false.

## 2. Troublesome blockers as supernatural interveners

### 2.a Miracles, laws and physical duplicates

Why think any TBR worlds are possible in the first place? How are we to conceive of such a situation? Hawthorne provides a brief suggestion in a footnote:

<sup>4</sup>I use  $N$  to make one think of neurological states, but  $N$  could include other sorts of physical conditions as well, including those outside the head.

It is natural to fill out the story by thinking of the Blocker as some God-like entity that has a will, forms desires and so on, and who is capable of miraculous intervention in the natural order. But this is only one, albeit tempting, way of putting flesh on the abstract description. (2002, 112n2)

Call this the *supernatural intervention strategy* for conceiving of troublesome blockers. As I have defined blockers, they are properties, not individuals as in the passage above, but we can transpose the suggestion and speak of the property of being accompanied by a miracle worker of the relevant sort. Following this suggestion, let us build on our earlier sketch involving Amy and her headache to see if we can add enough details to make for a conceivable TBR world.

Earlier I introduced  $B_{NH}$  as a contraphysical property that blocks  $H$  relative to  $N$  but did not characterize it any further, leaving it unclear whether we have any idea whether a situation of that sort is possible. But now we have a strategy; let us characterize  $B_{NH}$  as the property of being accompanied by a miracle worker who wills that there be no pain accompanying  $N$ . If we grant that miracle workers are possible, then shouldn't we also grant that the world just described is possible and, hence, that a TBR world is possible?

No. Depending on just what choices we make in trying to fill in the description, we find that the world is either clearly impossible, possible but not troublesome, or dependent on a supposition the possibility of which is itself dubious. To see this, two preliminary points regarding miracles and physical duplicates must be kept firmly in mind.

The first point is familiar. Granting the possibility of supernatural intervention may be admissible, but the miracle worker should not be understood as having the ability to violate metaphysical necessities. Not even God, were he to exist, could do *that*. The supernatural intervention strategy, then, turns on the implicit idea that the link between  $N$  and  $H$  is mediated by natural law.<sup>5</sup> Let  $L_{NH}$  be the relevant law, something that at least includes the implication that anything with  $N$  must have  $H$  as well. In any world in which  $B_{NH}$  is instantiated, then, some miracle worker suspends that law, allowing things with  $N$  to fail to have  $H$ .

The second point concerns what it takes for one world to be a physical duplicate of another—minimal or otherwise. The two worlds must match with respect to the pattern of instantiation of physical properties, but that is not all: the laws of physics must match as well.<sup>6</sup> One *could* define a notion of physical duplication—and a corresponding supervenience thesis—that doesn't require a match in the laws of physics. But the resulting thesis would be obviously too strong a condition on physicalism. Consider a thin and fragile pane of glass in the actual world and another world such that it (i) matches the actual world perfectly with respect to which physical properties are instantiated yet (ii) differs with respect to the laws of physics, specifically in a way that renders the corresponding pane of glass practically unbreakable. The point is just that many of the nonphysical properties we want to ensure appear in the duplicate world depend for their instantiation not only on the actual distribution of physical properties but also on the laws that govern their behavior. Any reasonable proposal to formulate physicalism as a supervenience thesis must, then, include those laws among what must be duplicated. If there are laws of nature *other* than the laws of physics, they are not automatically duplicated but will be so only if they are necessitated by

<sup>5</sup>I presume here that the laws of nature are not themselves metaphysically necessary; if they were, then the supernatural intervention strategy would be hobbled from the start. I do not, though, presume either a Humean or a non-Humean view of laws; the arguments throughout should work regardless of which is correct.

<sup>6</sup>At a presentation of an earlier version of this paper, one philosopher in attendance confessed that he had always assumed that Jackson's duplicates only needed to replicate the pattern of instantiation of physical properties, not the laws of physics. This is clearly an error. When Jackson first introduced the notion, he described it thus: "A minimal physical duplicate of our world is what you would get if you—or God, as it is sometimes put—used the physical nature of our world (including of course its physical laws) as a recipe in this sense for making a world" (1994, 28).

$w_A$	$w_B$
Amy has $N$	Amy has $N$
Amy lacks $B_{NH}$	Amy has $B_{NH}$
Amy has $H$	Amy lacks $H$
$L_{NH}$ is a law	$L_{NH}$ is not operative

the conditions that *are* automatically duplicated—which conditions include the laws of physics themselves.

Now let us return to our attempt to conceive of a TBR world. Let  $w_A$  (for Amy) be the candidate TBR world in which Amy has  $N$  and  $H$ , lacks  $B_{NH}$ , and law  $L_{NH}$  is operative. We suppose there is some distinct possible world  $w_B$  (for Blocker) in which the miracle worker exists and suspends  $L_{NH}$ ; there, Amy has  $N$  but lacks  $H$ . Our situation thus far conceived looks like this:

So far, so good. But all is not well, as we see when we focus on a couple of questions the answers to which have not yet been settled. Whichever way we answer those questions, the resulting description of  $w_A$  will not allow us to be confident that it is both possible and a genuine TBR world.

### 2.c Is the law entailed by the physical laws and conditions?

Our first question concerns how the law  $L_{NH}$  relates to the physical laws and conditions in  $w_A$ . That law is presumably not *among* the laws of physics at  $w_A$  given that it governs a nonphysical property, namely,  $H$ .<sup>7</sup> Still, it may be related to those physical laws in an important way. The key question is whether, in imagining the case, we should stipulate that the following entailment thesis is true or false.

For any world  $w$  such that (i) the laws of physics in  $w_A$  are the laws of physics in  $w$  and (ii)  $w$  and  $w_A$  are indiscernible with respect to their distribution of physical property instances,  $L_{NH}$  is a law in  $w$ .<sup>8</sup>

Suppose we stipulate that it is *false*. On this option, notably, a minimal physical duplicate of  $w_A$  will be one in which  $L_{NH}$  is *not* a law. After all, such a duplicate will replicate the distribution of physical properties and the laws of physics in  $w_A$  and nothing further—*unless* that something else is necessitated by those two factors. By supposing the entailment thesis false, however, we are supposing  $L_{NH}$  is not so necessitated. Including  $L_{NH}$  would be including an “extra” not properly required by the physical laws and conditions, so no minimal physical duplicate of  $w_A$  is one in which  $L_{NH}$  is a law.

What does this mean for Amy and her headache? In  $w_A$ , the headache she suffers is a consequence of her instantiating physical property  $N$  and the law  $L_{NH}$ . In constructing a minimal physical duplicate of  $w_A$  we need to be sure she has  $N$  again, but since the law  $L_{NH}$  is not included, there is no *requirement* that she have  $H$  as well. And, again, a minimal physical duplicate excludes

<sup>7</sup>Might  $H$  be *identical* with some physical property or other? We must suppose it is not if we are in search of a blocker-relevant world. If  $H$  is identical with some physical property, then a minimal physical duplicate of  $w_A$  automatically includes  $H$ ; it is not blockable by any kind of extra entity.

<sup>8</sup>I understand condition (ii) as excluding worlds that include but *exceed* the physical property distribution in  $w_A$  by having additional physical property instances. I am allowing here for the possibility that a law may depend on contingent conditions; the thought is that  $L_{NH}$  might depend on a pattern of physical property instances that would be disrupted by adding further merely physical property instances. It cannot, though, on this thesis, depend on something that could be disrupted by adding further nonphysical or contraphysical property instances.



everything not required by the duplicated physical conditions, so in any minimal physical duplicate of  $w_A$ , Amy is headache free.

This result, however, means that  $w_A$  is *not a TBR world*. Recall that condition (iv) on being a TBR world is that any minimal physical duplicate of the world in question is a duplicate simpliciter. By stipulating the falsity of the entailment thesis above, we ensure that minimal physical duplicates of  $w_A$  differ from  $w_A$  in that Amy lacks  $H$  in those duplicates.

If, then, we want  $w_A$  to be a TBR world, we must stipulate that  $L_{NH}$  is indeed necessitated by the physical laws and instances in  $w_A$ . With that stipulation, any minimal physical duplicate of  $w_A$  will include  $L_{NH}$  as a law and thus ensure that Amy has not only  $N$  but  $H$  as well, so there is no problem supposing it to be a duplicate simpliciter.

So far, so good. What we've said seems to be compatible with there being a *nonminimal* physical duplicate of  $w_A$ , one in which our miracle worker is added, where that miracle worker suspends  $L_{NH}$  and allows Amy to be free of her headache. Another problem comes into view, however, when we think further about *how* we are to conceive of the miracle working as suspending  $L_{NH}$  on this option.

### 2.d Is the miraculous action direct or indirect?

There are two importantly different ways we might imagine the miracle working achieving his goal. On one option, the miracle is effected directly: the intervener overrides or suspends the law  $L_{NH}$  without having to change any other laws or conditions. Alternatively, the miracle is effected indirectly: he intervenes *by* changing some other law and/or conditions. In filling out our picture, which option should we stipulate?

Suppose that the miracle is direct. This is likely the most natural way of imagining the case: we start with a world just like  $w_A$ , add the miracle worker, and change the conditions of the world in only one further way: everyone with  $N$  simply has his or her headache *removed*, without changing anything else. The result is a world  $w_B$  which is indiscernible from  $w_A$  except in those two respects (the presence of the blocker and the removal of those headaches). Notably, however,  $w_B$  is still a *physical* duplicate of  $w_A$ : the physical laws and the contingent physical conditions remain a perfect match between the two worlds.

This fact should give us pause. We are presently working under two stipulations: that  $L_{NH}$  is indeed entailed by the laws of physics and physical conditions in  $w_A$  *and* that the miracle is effected directly, so  $w_B$  is a possible world. These two stipulations seem to conflict with each other. After all, in  $w_B$  the miracle worker has supposedly suspended  $L_{NH}$  *even while leaving in place conditions that ensure that  $L_{NH}$  is a law*. On the face of it, this is a self-contradiction.

But this complaint is too quick. If we take seriously the possibility of miraculous intervention, we must think there is some coherent account of how something could be a law even while being suspended. And there is such an account. On what I take to be the traditional approach, laws of nature are *implicitly conditional*, applying only when nothing outside the system interferes with it (Mackie 1982, 19–20). The suspension or violation of the law is understood as its being rendered irrelevant because a requisite background condition is not satisfied.

We should, then, understand the law  $L_{NH}$  as similarly conditional, perhaps having as its content something like this:

Anything with  $N$  has  $H$ , *unless* it has  $B_{NH}$ .

This enables us to evade the self-contradiction. We can hold that  $L_{NH}$  is still a law in  $w_B$  even though it *fails to apply* to anything, as everything in that world has  $B_{NH}$ —everything is accompanied by the relevant kind of miracle worker. The physical conditions common to  $w_A$  and  $w_B$  necessitate that  $L_{NH}$  is a law, but in  $w_B$  the miracle worker's presence ensures that the law has no consequences. Have we now conceived of a TBR world?

Not clearly. We have avoided self-contradiction but at the price of introducing a supposition the possibility of which is itself unclear. Note that the law  $L_{NH}$  is now supposed to have a form like that

given above *and* to be such that the physical conditions and laws common to  $w_A$  and  $w_B$  necessitate that  $L_{NH}$  is a law. It is hard to see how it could be thus necessitated given that it includes an escape clause referring *specifically* to this contraphysical property  $B_{NH}$ . Consider by contrast the idea that those physical conditions necessitate that it be a law that anything with  $N$  has  $H$ . Since  $H$  is nonphysical *but not contraphysical*, it is capable of being related to the physical in the way that physicalism requires; as a result, it doesn't seem perplexing that physical conditions and laws might entail the law relating  $N$  and  $H$ . By contrast,  $B_{NH}$  is *contraphysical*; it is hard to see how purely physical factors could have any nontrivial implications about the conditions under which  $B_{NH}$  is instantiated.<sup>9</sup>

There is a subtly different option one might propose. Instead of the escape clause citing some contraphysical condition specifically, the clause might be more general and merely subsume such conditions without being *about* them. If we say that a law of nature only describes how nature works when *nothing outside the system interferes with it*, that "nothing outside" clause says nothing about any contraphysical entities as such. Perhaps it is more plausible that purely physical laws and conditions could entail a law with *that* kind of escape clause.

Still, how is the talk of "interference" to be understood on this approach? The natural approach here is to say that the escape clause is "unless something not itself physical interferes with physical conditions." After all, those other physical conditions are what otherwise ensure that anything with  $N$  has  $H$ . If that's right, however, then what we are imagining is not *direct* miraculous intervention. It is rather *indirect* intervention: the contraphysical entity works its magic by first interfering with the physical conditions, which interference results in the inapplicability of  $L_{NH}$ .

So we are now considering the other option on the table: supernatural intervention that works *indirectly*. Might conceiving of *that* sort of miracle worker enable us to conceive of a TBR world?

No. The problem this time is different, however. Instead of the candidate world being of dubious possibility, there is nothing in it to threaten the truth of physicalism therein. If a miracle worker had existed and changed the physical conditions on which Amy's headache depends and thereby took away her headache, this hardly shows that her headache wasn't dependent on those physical conditions. Indeed, it *illustrates* that dependence. For all we have said about the case, this dependence may be of the sort required for physicalism.

To fill in the case a bit more, suppose that the headache property is functional in nature and the physical  $N$  is, given the laws of physics, sufficient to ensure that the bearer of  $N$  has a property that plays that role. Nothing in this case is contrary to physicalism, but it is also consistent with the possibility that some supernatural intervener might change the laws of physics in a way so that  $N$  no longer suffices for that role to be played. But *this* kind of blockability is benign. It is no more contrary to physicalism than the truth of the following counterfactual:

If a magical spirit had caused all the objects in my room to levitate and spin wildly around me,  
I would be amazed.

Supposing that magical spirits are at all possible, a physicalist should allow the truth of this counterfactual. (And if they are *not* possible, or if no supernatural interveners capable of changing physical conditions are possible, this route to a TBR world is blocked anyway.)

Let me sum up our results. The supernatural intervention strategy requires seeing  $N$  and  $H$  as linked by a law of nature instead of a metaphysically necessary connection. That law is itself either

<sup>9</sup>At least, it is hard to see how this might be so while aiming to describe a *troublesome* blocker-relevant world. One can provide a straightforward way for the law to be entailed by purely physical conditions and laws if we understand  $H$  in a way that makes it relevantly similar to the property of being a spookless cake. Suppose  $H$  is not the property of having such-and-such kind of headache but, rather, the property of having that kind of headache *while not being accompanied by a miracle worker*. In that case, it is not hard to see how physical conditions could necessitate the law with the miracle exception built in. Of course, in that case, the blockability of  $H$  is obviously no threat to physicalism either.



entailed by the laws of physics at  $w_A$  or not. If *not*, then a minimal physical duplicate of  $w_A$  is not a duplicate simpliciter, so  $w_A$  is not a TBR world. If the law *is* entailed by those physical laws and conditions, then the action of the supernatural intervener is either direct or indirect. If it is *direct*, the world we are trying to imagine threatens to be self-contradictory; at best, it is hard to see how the purely physical conditions and laws could necessitate a law with an exception clause specifically about some contraphysical entity. If it is *indirect*, the world we are trying to imagine is perfectly coherent, but the possibility of that world does not threaten the status of physicalism at  $w_A$ . In no case, then, have we clearly conceived of a possible TBR world.

### 3. The nature of troublesome blockers

#### 3.a “Positive” facts and properties

Our attempt to conceive clearly of a TBR world has not succeeded. One may suspect that troublesome blockers are just impossible. Before drawing any such conclusion, however, we would do well to try for a better understanding of what makes a blocker-relevant world troublesome in the first place, starting with Hawthorne’s suggestion.

That suggestion seems both appealing and simple: if the blockable fact is a “positive fact,” then its blockability is troublesome. We can represent his suggestion as adding a fifth condition to the four that define a blocker-relevant world. The fifth condition is just:

(v) for at least one thing in  $w$  that has  $F$ , the fact that it has  $F$  is a positive fact.

A TBR world, then, might be a blocker-relevant world that meets not only conditions (i)–(iv) but also condition (v).

Whether we should define TBR worlds in this way depends, obviously, on how “positive fact” is understood. Hawthorne alludes to—without endorsing—the way the term is used by David Chalmers (1996, 38–41) when giving his own proposal for a supervenience thesis that allows “extras.”<sup>10</sup> There we find the distinction explained as follows:<sup>11</sup>

Supervenience theses should apply only to positive facts and properties, those that cannot be negated simply by enlarging a world. We can define a positive fact in  $W$  as one that holds in every world that contains  $W$  as a proper part; a positive property is one that if instantiated in a world  $W$ , is also instantiated by the corresponding individual in all worlds that contain  $W$  as a proper part. (Chalmers 1996, 40)

Suppose we define a TBR world as a world that meets conditions (i)–(v) and understand “positive fact” as defined above by Chalmers. Does this definition better enable us to clearly conceive of troublesome blockers?

Far from making it easier, the definition makes it *impossible* to conceive of a TBR world. If a positive fact is defined as one that “cannot be negated simply by enlarging a world,” then positive facts are by definition not blockable. On the present suggestion, the blockers problem can be quickly dismissed. Indeed, the dismissal is *too* quick, suggesting that we have simply failed to diagnose the difference between innocent and troublesome blockers.

<sup>10</sup>Hawthorne may seem to endorse Chalmers’s account, as he introduces his diagnosis of the innocent/troublesome distinction by saying “Here we can invoke Chalmers’ positive/negative distinction” (108). However, in a footnote (10) from earlier in his paper, he presents Chalmers’s account but then distances himself from it by adding “[t]his is not the place to explore the pros and cons of this particular style of definition of ‘positive property’” (2002, 112).

<sup>11</sup>In my own 1999, I made an error in describing Chalmers as understanding the positive/negative distinction in linguistic terms (328). While I long ago communicated my regrets to him personally, I want to acknowledge the error here. I am still puzzled as to how I made that mistake.

But the problem with using (v) to define a TBR world runs deeper yet. Suppose we jettison Chalmers's modal definition of *positive fact* and lean instead on some intuitive understanding of *positive fact*. Arguably, the resulting definition of a TBR world now fails for the opposite reason: instead of rendering such worlds obviously impossible, it will imply that it is too *easy* for a world to count as TBR.

I say “arguably” because the definition can only be applied by relying on some intuitive notion of *positive fact*, and I am not sure I have any such notion. But others apparently do. Among them is Stephan Leuenberger, whose judgements concerning which facts count as positive, if accepted, make it too easy for a world to be TBR. I have in mind his review of three examples he brings up in response to what he calls the “unblockability objection”—the claim that “positive facts such as itches and pains ... are not blockable, unlike negative facts” (2008, 152). Against this, he offers three examples of blockable positive facts. Consider just the third of these.

Being disposed to reflect photons is a positive property. Suppose that in the actual world, *o* has that disposition, but is never reached by a photon. In a physical duplicate of the actual world, *o* is infused by photon-absorbing gunk. The fact that there is gunk blocks the positive fact that *o* is disposed to reflect photons. (Leuenberger 2008, 153)

If this fact counts as positive, then the example shows that the definition of a TBR world using (v) is too permissive. If we let the gunk here be contraphysical, the example can meet conditions (i)–(v) yet still be intuitively consistent with physicalism. If we think about what goes into the object's disposition to reflect photons, the relevant factors resolve themselves into physical factors and an acceptable lack of contraphysical factors. Why does it have the disposition to reflect photons? Part of the answer appeals to the physical features of the object; another part appeals to the fact that nothing would prevent such reflection if the opportunity were to arise. The lack of contraphysical gunk is subsumed under the latter. Compare to the case of a spookless cake. Why is this thing a spookless cake? The factors break into the same two categories: physical facts (making it a cake) and a lack of contraphysical factors (making it spookless). That combination suffices to explain why being a spookless cake is instantiated. Nothing here should make us worry that its instantiation is dependent in an objectionable way on something contraphysical.

If, then, we count this kind of case as a positive fact, then the proposed definition of a TBR world is to be rejected as too inclusive.<sup>12</sup> Leuenberger himself should be happy with this result, as his own proposal is to formulate physicalism in a way that admits the possibility of blockers generally—not recognizing any category of troublesome blockers. This is again too quick, in my view; we *can* identify what makes for a TBR world, though it's easiest to see how if we drop the attempt to capture the notion using talk of a “positive” fact or property.

### 3.b Grounds for trouble

In reviewing the disposition case above, I argued that it was no threat to physicalism by appeal to *explanation*: the factors that explained the object's possessing the disposition were all factors acceptable to the physicalist: either physical facts or facts about the absence of contraphysical entities. The kind of explanation at issue is that associated with metaphysical grounding: what *makes it the case* that the object has the disposition, or what *grounds* the fact that it has the disposition, is the fact that it has such and such physical factors that would cause it under appropriate circumstances to reflect

<sup>12</sup>Someone who finds talk of positive versus negative facts intuitive might want to describe the disposition fact as both negative and positive, or perhaps as a mixture or conjunction of both. In that case, condition (v) would need adjusting; perhaps we could say that it's a TBR world when the fact about having *F* is “entirely” positive? But no; that surely is too strong a condition. Suppose we take the original example of Amy's headache and adjust it to be a spookless headache. It's no longer entirely positive, but it still seems apt to be troublesome.

photons. What makes this blocker innocent is, it seems, the fact that the property at issue (having the disposition) is grounded entirely in facts acceptable to the physicalist. Accordingly, we may venture the hypothesis that a troublesome blocker relevant world is one in which the blockable property  $F$  is grounded at least in part in something *not* acceptable for the physicalist.

Whatever that is, it cannot be the fact that something in the world has the contraphysical blocker property—since by hypothesis nothing in that world has that property. Nor can it be the fact that something lacks that property; we can hardly say that physicalism is falsified in this world because something *lacks* a contraphysical property. Instead, if this diagnosis is on the right track, we must suppose there is some *other* contraphysical property in the picture, one actually instantiated in the TBR world. Of course, when Hawthorne described the case of blockable pain and created the impression that such a world is contrary to physicalism, he did not describe any contraphysical entity other than the blocker. My suggestion, nonetheless, is that the structure of the example naturally leads us to posit something *else* contraphysical.

Say we are told only the bare details: Amy has the physical property  $N$  and the headache property  $H$ ; she does not have the blocker property  $B_{NH}$  that blocks  $H$  relative to  $N$ . We're also told that a minimal physical duplicate of this world is one in which all three of these facts are replicated. Why would this lead us to suppose there is some contraphysical property distinct from  $B_{NH}$  instantiated in that world?

A natural explanation is available if, in reacting to the case, we implicitly make two assumptions. The first is that when a fact is fully grounded, there is no possible world in which the grounds obtain and the grounded does not.<sup>13</sup> The second is that physicalism is false if the fact that Amy has  $H$  lacks a full ground consisting solely of physical facts and, perhaps, facts to the effect that various entities do not exist or are not instantiated.

In considering the case, we first note that the physical facts in this world are not enough to ensure that Amy has  $H$ , since there is a physical duplicate of it (with the blocker added) in which she lacks  $H$ . Given the assumption that full grounds necessitate, we conclude that this fact about pain is not fully grounded by any physical facts. Given the assumption about physicalism, we conclude that if physicalism is true, the fact that Amy has  $H$  must have a full ground consisting not only of physical facts but also facts to the effect that such and such things do not exist or are not instantiated. But our understanding of pain makes it hard to believe that someone's being in pain is grounded in any facts of the latter sort. (This, of course, is what the idea that pain is a "positive" property is getting at.) As a result, we are inclined to suppose that Amy's having  $H$  does not meet the requirements on being physicalistically acceptable. Either there is some full ground of this fact that includes something other than the acceptable grounds or her having  $H$  has no full grounds distinct from itself and (hence) is fundamental.

In light of this account, we can offer a different, better definition of a TBR world. Instead of the previous version of condition (v) that spoke of "positive" facts, the new version refers instead to the grounding considerations just reviewed:

A world  $w$  is a *troublesome blocker-relevant world* iff there exists a physical property  $P$ , a nonphysical property  $F$ , and a contraphysical property  $B$  such that:

<sup>13</sup>I recognize that this claim is controversial, of course; see Leuenberger (2014) and Skiles (2015). It is worth noting that when Leuenberger engages directly (2008, 156–57) with Hawthorne's comments about what makes a blocker troublesome, his response leans on the denial of this claim that full grounds necessitate. More specifically, he takes Hawthorne's suggestion about troublesome blockers to turn on the general principle that "no nonphysical fact is indispensable for explaining some positive fact about our world" (156). He then argues that blockable positive facts can be perfectly well explained without referring to the lack of blockers. I agree with *this* much: explanations can often proceed without invoking all potential but nonactual situations that would affect what we are explaining. In my view, though, physicalism imposes a specific and stronger demand, namely, that the supervening facts are—unless they are only blockable in the *innocent* way—nothing over and above the physical facts. This "nothing over and above" status in turn requires they be necessitated in a sense stronger than the weak necessity of *ceteris absentibus* sufficiency set out in Leuenberger 2008.

- (i) *B* blocks *F* relative to *P*;
- (ii) nothing in *w* has *B*;
- (iii) something in *w* has *P*;
- (iv) any minimal physical duplicate of *w* is a duplicate simpliciter of *w*; and
- (v) for at least one thing *x* that has *F* in *w*, either the fact that *x* has *F* is fundamental or there is some contraphysical property *C* such that the fact that *x* has *F* is grounded (at least in part) in the fact that *x* has *C*.

Recall that a nonphysical property was defined earlier as one that is not initially counted as physical but might be related to the physical in the way required for physicalism's truth. Condition (v) here allows that the instance of *F* is fundamental, in which case it is not related to the physical in the way required for physicalism's truth. Or, as per the second disjunct, it may be fully grounded in some fact involving a contraphysical property. Either way, condition (v) ensures the falsity of physicalism in *w*.

### 3.c The merely modal objection and the possibility of troublesome blockers

If this account of the distinction between innocent and troublesome blockers is accepted, the problem blockers pose for supervenience formulations of physicalism is a version of the more general merely modal objection. Perhaps the easiest way to see this is to note that condition (v)—the condition that ensures the falsity of physicalism—renders conditions (i)–(iii) *idle*. The structure of blocking is inessential to the troublesome character of the world.

Suppose we simplify the definition then by excising (i)–(iii) and removing mention of properties not playing a role in the remaining conditions. The simplified conditions define, let us say, a “troublesome” world:

A world *w* is a troublesome world iff there exists a nonphysical property *F* such that:

- (i) any minimal physical duplicate of *w* is a duplicate simpliciter of *w*; and
- (ii) for at least one thing *x* that has *F* in *w*, either the fact that *x* has *F* is fundamental or there is some contraphysical property *C* such that the fact that *x* has *F* is grounded (at least in part) in the fact that *x* has *C*.

A standard way to present the merely modal objection to supervenience formulations is to give a consistent description of modal space that both verifies the supervenience thesis in question and falsifies physicalism. Doing this will amount to describing a troublesome world as defined above.<sup>14</sup> If we succeed in conceiving of a troublesome blocker-relevant world, we will just be implementing the merely modal objection using an example of a particularly complicated type.

Can we conceive of such a world? In section 2, I examined at length an attempt to do so following the strategy suggested by Hawthorne, arguing that appeals to supernatural intervention gave us no good picture of a TBR world. The point was to show that our understanding of the blockers problem was inadequate and that we needed a better account of the distinction between innocent and troublesome blocker. Now we have that better account and, I believe, can conceive clearly of a TBR world.

To see how, let us think first about examples used to illustrate the merely modal objection. The simplest sort of example invokes fundamental necessities. Suppose that MPD is true, but there is no explanation of its truth; the fact that there is no minimal physical duplicate of the actual world that

<sup>14</sup>A minor qualification: it may be that there are ways to illustrate the merely modal objection by focusing on something contrary to physicalism other than a property—such as an individual that cannot exist in a physicalist world—while conforming to a supervenience thesis like MPD. There is, for example, the well-known point that a necessarily existing deity would “supervene” on the physical in the sense that any two physically indiscernible worlds will be indiscernible with respect to the existence of such a deity. But, of course, in this case—and others—there will be relevant properties to focus on, such as that of being divine.

isn't a duplicate simpliciter is just a brute fact. This is consistent with the claim that, say, Amy's headache is an entirely new kind of property, one that is not grounded in or in any interesting metaphysical way linked to the physical properties she possesses at that time. In this case, physicalism is false; the first disjunct of condition (ii) applies here, as the nonphysical property is simply fundamental.

Insofar as we are doubtful about the possibility of such fundamental necessities, however, this way of making the merely modal objection has limited force. More effective examples are given when we are given some idea of how the relevant facts about modal space might be explicable. The best approach to my mind is one that exploits a kind of "common cause" structure, so that nonphysical properties of the relevant sort and the physical properties on which they supervene are both grounded in some third category of property, and this common grounding explains this supervenience. Here is one way to fill out the story a bit more (adapted from Witmer 2001, 70).<sup>15</sup>

Suppose that there are properties of some contraphysical sort that are distinct from any of the nonphysical properties with which we are acquainted. Call them *Q-properties*. There are many different Q-properties; in fact, for every physical property *P* there exists a pair of Q-properties such that there are two ways *P* could be instantiated: it could be instantiated either by virtue of one member of that pair or by virtue of the other member. On this picture, Q-properties are more fundamental than physical properties. Fixing the Q-properties will fix the physical properties, of course, given the possible ways in which physical properties could be instantiated. Further, suppose that every other kind of property instantiated in the actual world—every nonphysical and nonQ property—is necessarily instantiated as well by virtue of the instantiation of Q-properties. The physical is entirely *bypassed* on this picture, so that even though, say, a headache supervenes on some physical property, this is just a side effect of the fact that both that physical property and that headache are grounded in some fact about these Q-properties.

Now what about troublesome blocker-relevant worlds? I will provide a version of the Amy example; to make it easier to digest, I will give it a playful gloss by imagining the contraphysical properties are both a kind of "spooky color." Let *spooky blue* (*B*) be a contraphysical determinable property with two incompatible determinates *B*<sub>1</sub> and *B*<sub>2</sub> that exhaust the shades of *B*. One of these—*B*<sub>1</sub>—will serve as our blocker of *H* relative to *N*. The other will play a role in grounding the instantiation of *H*. Those roles depend on two further stipulations about the nature of *N* and *H*, both of which ensure that any instantiation of either *N* or *H* is grounded both in something contraphysical and something physical.

Let *P* be some physical property other than *N*; *P* might be fundamental in the way physicalists think all physical properties to be. The first stipulation is that it lies in the nature of *N* that to have *N* is to have both *P* and spooky blue *B* (the *determinable* spooky blue), so that, necessarily, anything with *N* has it by virtue of having both *P* and *B*. The second stipulation is that it lies in the nature of *H* that to have *H* is to have both *P* and the specific spooky shade *B*<sub>2</sub>, so that, necessarily, anything with *H* has it by virtue of having both *P* and *B*<sub>2</sub>. At a glance:

Property	When instantiated, grounded by
<i>B</i>	either <i>B</i> <sub>1</sub> or <i>B</i> <sub>2</sub>
<i>N</i>	<i>P</i> and <i>B</i> (either <i>B</i> <sub>1</sub> or <i>B</i> <sub>2</sub> )
<i>H</i>	<i>P</i> and <i>B</i> <sub>2</sub>

<sup>15</sup>The common cause structure of this example is inspired by "neutral monist" ideas about a third, neutral layer of reality underlying both the mental and the physical. That structure itself doesn't require that the third layer be neutral, however; Q-properties can be contraphysical in the way the parallel "spooky blue" properties are in the next example to be introduced.

Given these claims about the nature of the relevant properties, we can describe a world that meets the condition on being a TBR world and presents no reasons to doubt its possibility. Let  $w_A$  be the world in question, where Amy has both  $N$  and  $H$  and nothing has the blocker property  $B_1$ . Now let us review the conditions (i)–(v) on being a TBR world as applied to this example.

**Condition (i)** is that  $B_1$  blocks  $H$  relative to  $N$ . Given our stipulations, both of the following modal claims follow from the nature of the properties at issue. First, *necessarily, if something has  $N$ , it has  $H$  as well, unless it also has  $B_1$* . If it doesn't have  $B_1$  but has  $N$ , it must have  $B_2$  (since  $N$  is always grounded in either  $B_1$  or  $B_2$ ). And since having  $N$  always requires having  $P$ , this means that the individual in question has both  $P$  and  $B_2$ —which grounds having  $H$ . Second, *possibly, something has  $N$  and  $B_1$  and doesn't have  $H$* . When  $N$  is grounded by something having  $P$  and  $B_1$ , that thing will not have  $B_2$  (as  $B_1$  excludes it) and hence does not have  $H$  (since  $H$  requires having  $P$  and  $B_2$ ).

**Condition (ii)** (that nothing in  $w_A$  has  $B_1$ ) and **condition (iii)** (that something in  $w_A$  has  $N$ ) have both been stipulated to hold in the example.

**Condition (iv)** is that any minimal physical duplicate of  $w_A$  is a duplicate simpliciter of  $w$ . A minimal physical duplicate of  $w_A$  will replicate Amy's possession of  $N$ , as  $N$  is a physical property. This requires inclusion of  $B$ , but this raises the question as to whether the duplicate shall have  $B_1$  or  $B_2$  in that place. Presumably, however, as the actual instance of  $N$  is grounded in  $B_2$ , not  $B_1$ , the minimal physical duplicate will also use  $B_2$ , not  $B_1$ . Substituting  $B_1$  would seem to be adding something not necessary for the physical duplication. So, in the minimal physical duplicate, Amy has  $N$  by having  $P$  and  $B_2$ . As a result, she must also have  $H$ , as  $P$  and  $B_2$  necessarily ground  $H$ . So far as the factors discussed go, then, the minimal physical duplicate of  $w_A$  should be a duplicate simpliciter.

Finally, **condition (v)** is that for at least one thing  $x$  that has  $H$  in  $w_A$ , *either* the fact that  $x$  has  $H$  has no full grounds distinct from itself and is thereby fundamental *or* there is some contraphysical property  $C$  such that the fact that  $x$  has  $H$  is grounded (at least in part) in the fact that  $x$  has  $C$ . The contraphysical property  $B_2$  may stand as the required  $C$ . One thing in  $w_A$  with  $H$  is Amy, and in her case the instantiation of  $H$  is grounded at least partly in her having that contraphysical  $B_2$ .  $B_2$  renders true the existential claim that there is some contraphysical property that helps ground the fact that Amy has  $H$ . The second disjunct of (v) is thus satisfied.

We have, then, an example of a TBR world where nothing about it suggests we should distrust its appearance of possibility. So in this way the blockers problem is vindicated; it can be used to show that a supervenience thesis like MPD is too weak for physicalism. But this vindication is not much to celebrate. It is—as we just saw in this example—a much more complex way to make a point that can be made without invoking blockers.

#### 4. Blockers begone

In a sense, this is a wholly destructive paper. I aimed to show that there is no *distinct* blockers problem, that insofar as there is an issue it is subsumed by another one—the merely modal objection to supervenience formulations. The blockers problem might even be described as an unfortunate version of the merely modal problem, as it raises no new issues but requires one to think through a structure that is much less easy to grasp than, say, the example presented earlier involving Q-properties as a common ground of physical and common nonphysical properties. Blockers should not, then, remain a stumbling block for those thinking about the formulation of physicalism. A formulation of physicalism that handles the merely modal objection should remove the blockers problem as well.

A more constructive paper than this might include such a formulation, but—for reasons of space—I decline to provide that here.<sup>16</sup> I should note, however, that the way I have tackled the issue of blockers in this paper does not provide ready guidance to coming up with such a formulation.

<sup>16</sup>Don't think I don't have one.



I have relied on the notion of a “contraphysical” entity—one whose existence or instantiation is incompatible with physicalism’s truth. A formulation of physicalism could hardly invoke *that* category of things on pain of circularity. It is not, then, to be expected that one could find a formulation of physicalism by requiring that the world not be a TBR world. There remains, then, important work to be done. But at least that work shouldn’t require us to think any more about blockers.

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