

REALIZATION REALIZED

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Sydney Shoemaker is among those physicalists who think that physicalism is best explicated by appeal not to supervenience but to some kind of realization. He describes the goal of his book as follows:¹

The purpose of this book is to give an account of property realization and microrealization and the relations between them, and to discuss their bearing on a number of central topics in metaphysics and the philosophy of mind. These topics include mental causation, personal identity, material constitution, emergence, and the phenomenal character of sensory states. (p. 4)

We will consider later what he means by “property realization” and “micro-realization.”

This is a remarkably ambitious agenda for such a short book—just 144 pages of text—and one might reasonably wonder whether Shoemaker pulls it off. The answer is that he does, but only at the cost of imposing heavy demands on the reader. Although the book turns out to be well organized and tightly argued, it is so highly condensed that these virtues are often apparent only in retrospect, after the hard work of exegesis has already been done. This is a book only for the patient, determined, and indeed well-rested reader; it is not easy to put together everything that Shoemaker says. However, the reader’s work is richly rewarded. The book is an excellent exercise in systematic metaphysics, a relative rarity in philosophy today. Every philosopher with a serious interest in the metaphysics of mind must struggle to understand it and then make their peace with it. Its treatment of realization, in particular, is the most valuable I know of.

Shoemaker presents three main accounts of realization. The first is an account of same-subject property realization, in which some object’s instantiation of one property is realized in the same object’s instantiation of another property. The second account is of different-subject property realization, in which the object that instantiates the realized property is constituted by, though numerically distinct from, the object that instantiates the realizing property. The third account is of microrealization, in which the instantiation of a property in a macroscopic object is realized by a microphysical state of affairs. In my first section, I will discuss Shoemaker’s account of same-subject realization. In my third section, I will discuss his account of microrealization. In the intervening section, I will discuss Shoemaker’s application of his understanding

1. Sydney Shoemaker, *Physical Realization* (Oxford University Press, 2007, x+151 pp. \$39.95 hardcover, \$24.00 paperback).

of realization to the problem of mental causation. I will neglect his account of different-subject realization, having discussed it elsewhere.²

I

Shoemaker presents his account of same-subject property realization in dialogue with a familiar rival, which he aptly calls “the standard account” (p. 11). As he characterizes the standard account,

... the realized property is the second-order property of having some property or other that plays a certain causal role, and its realizers are the first-order properties that play that role. (p. 11)

He claims, however, that the standard account faces a “prima facie objection”: it “has the consequence that mental properties, if physically realized, are epiphenomenal” (p. 11). He therefore announces:

I favor an account designed to avoid this consequence. (p. 11)

What is Shoemaker’s account? How exactly does it differ from the standard account? And how does it avoid the “prima facie objection” that Shoemaker notes? These are the questions I plan to address in the present section.

Shoemaker calls his account “the subset account” (p. 14). Let us call the kind of realization that it defines “realization₁”; it can be formulated in terms that stick close to Shoemaker’s own words as follows:

The instantiation at *t* in an individual entity, *e*, of a physical property, *P*, *realizes₁* the instantiation at *t* in *e* of a mental property, *M*, distinct from *P*, if and only if (iff):

- *e* instantiates both *P* and *M* at *t*,
- the forward-looking causal features of *M* form a proper subset of the forward-looking causal features of *P*, and
- the backward-looking causal features of *P* form a proper subset of the backward-looking causal features of *M*.

Shoemaker glosses the “forward-looking causal features” of properties as “the contribution their [*sc.* the properties’] instantiations are capable of making to the producing of various effects,” and he glosses the “backward-looking causal features” of properties as “the ways their [*sc.* the properties’] instantiation can be caused” (p. 5; cf. p. 12). Although causal features are themselves second-order properties, as Shoemaker notes (p. 12, note 4), his subset account of same-subject realization does not seem to claim that *realized* properties (e.g., mental properties) are second-order properties, so the subset account seems

2. “Comments on Sydney Shoemaker’s *Physical Realization*,” *Philosophical Studies*, forthcoming.

genuinely different from the standard account.³ Shoemaker expresses uncertainty whether his third condition is strictly necessary, but since it makes no difference to my present points, I shall ignore it.

I begin by noting that realization₁ seems not to meet a certain condition on realization that Shoemaker (rightly) treats as necessary. The condition is that:

[t]he realizer of a property instantiation should be *metaphysically sufficient* for the occurrence of that property instantiation. (p. 6; my italics)

Shoemaker's rationale for treating this condition as necessary is presumably something like this. He wants to use a claim of physical realization to express the thesis of physicalism (pp. 1–2); hence, the claim that a certain mental property instantiation is realized in a physical property instantiation must entail that physicalism is true of the mental property instantiation. If this entailment holds, however, then the claim that a certain mental property instantiation is realized in a physical property instantiation must entail everything entailed by the claim that physicalism is true of the mental property instantiation, since entailment is transitive. But one thing entailed by the claim that physicalism is true of the mental property instantiation is that the mental property instantiation is “nothing over and above” (p. 4) the physical property instantiation—which in turn requires that the physical property instantiation be metaphysically sufficient for the mental property instantiation. (Merely nomological sufficiency would be compatible with the mental property instantiation's being something over and above the physical property instantiation.) So, if a certain mental property instantiation is realized in a physical property instantiation, then, given the physical property instantiation, there must, metaphysically, be the mental property instantiation.⁴

Now why should we think that this condition is met if same-subject realization is understood as realization₁? Shoemaker does not explicitly address this question, but the following line of reasoning suggests itself. Suppose that entity *e* instantiates physical property *P*, and that *P*'s forward-looking causal features form a certain set, the *P*-set. Suppose too that the forward-looking causal features of mental property *M* also form a set, the *M*-set, and that the *M*-set is a proper subset of the *P*-set. Then, because *e* is instantiating *P*, the causal features that make up the *P*-set are automatically instantiated, and so therefore are the causal features that make up the *M*-set. But now what? Does it follow that *e* instantiates *M*? Given only the premises explicitly stated, no, it does not. What is needed, but has not been supplied, is a premise stating a metaphysically sufficient condition for *e* to instantiate *M*, where, given the premises that *have* been explicitly stated, this sufficient condition must be met.

3. Shoemaker describes the above account of realization₁ as “only a first approximation” (p. 13), which he will later refine, but he does so only because, as formulated here, the account “makes any conjunctive property a realizer of each of its conjuncts” (p. 13).
4. If the physical property's causal features are not essential to it, then we can add to the physical property instantiation the holding of all physical-to-physical causal laws.

Shoemaker turns out to endorse just such a premise. For, somewhat surprisingly, he holds on reflection that his subset account of realization is “a version” (p. 14) of the standard account, that is, a version of a second-order property account. He writes that the subset account:


... can be expressed by saying that the realized property is a second-order property the having of which consists in having some first-order property or other that satisfies a certain condition, namely that its forward-looking causal features include as subset those of the realized property, and it's [sic] backward-looking causal features are a subset of those of the realized property. (pp. 14–5)

If the subset account can be expressed in this way, then the subset account entails that some object *x*'s having some first-order property or other, whose forward-looking causal features include as a subset those of mental property *M* (and whose backward-looking causal features are a subset of those of *M*), is metaphysically sufficient for *x*'s instantiation of *M*. And this entailed claim is just the ticket for completing the proof above that, if *e*'s instantiation of *M* is realized by its instantiation of *P*, then, given that *e* instantiates *P*, *e* must, metaphysically, instantiate *M*.

But *can* the subset account be expressed in this way? Is it really a version of the standard, second-order property account? Nobody inspecting the formulation of the subset account given above, which follows Shoemaker's wording very closely, could seriously claim that any obvious deductive path leads from it to a second-order account. On the other hand, the formulation given above is loose enough that to gloss it as a second-order account seems quite permissible. Indeed, to do so usefully sharpens Shoemaker's account.

How, if at all, does *Shoemaker's* second-order account of same-subject property realization differ from the *standard* second-order account of same-subject property realization? On the face of it, Shoemaker's second-order account of same-subject property realization is just a notational variant of the standard account. So what significant difference is there between them? Shoemaker says that:

... the difference has to do not only with [i] how the condition on the first-order properties is characterized but with [ii] how second-order properties are conceived. (p. 15)

The difference with regard to how the condition on first-order realizing properties is characterized is that Shoemaker's second-order account “explicitly assign[s] a causal profile to the realized property” (p. 15). The explicit assignment that Shoemaker has in mind must, I think, be the phrases that I have italicized in the following clause from the quotation above (from pp. 14–5) 

... its forward-looking causal features include as subset those *of the realized property*, and it's [sic] backward-looking causal features are a subset of those *of the realized property*.



Fair enough, though I see no reason why advocates of the standard account should not insist that realized properties play causal roles.

The difference with regard to how second-order properties are conceived is this. Shoemaker distinguishes two ways of conceiving of second-order properties (p. 15). The way that he *rejects* holds that second-order properties are properties

... [1] that are logical constructions out of their realizers ... and [2] whose instances just are instances of one or another of those realizers. ... (p. 18)

By contrast, Shoemaker's *preferred* way of conceiving of second-order properties says that second-order properties are *not* logical constructions out of their realizers, and that their instances are *distinct* from the instances of their realizers. But the talk of logical constructions in clause [1] is obscure, especially since no one thinks of second-order properties as things that we *make*. So what is Shoemaker getting at? Here is my guess. Being a logical construction out of something else sounds like an inferior ontological status, at least by comparison with the something else. So I think Shoemaker's point is that second-order properties should be conceived in such a way that they are on an exact par with the properties that realize them. They have not always been conceived in such a way. In particular, they have sometimes been conceived as properties *essentially dependent* on distinct properties in the sense that, necessarily, when a second-order property is instantiated, it is realized by the instantiation of some *distinct* first-order property. Thus, a second-order property P might be defined as the property of having some or other property, *distinct from P*, that plays role R. Being essentially nonbasic, a second-order property therefore could not be instantiated in a world in which the only properties were second order. By contrast, a realizing first-order property *could* be instantiated in a world in which the only properties were first-order properties. Shoemaker, however, proposes an account of what it is for a property to be instantiated that avoids this invidious distinction:

... for any property P that can be instantiated in a world, there is a causal profile such that a necessary and sufficient condition of P's being instantiated in that world is that *there be instantiated* in that world a property Q having the forward-looking causal features of that profile and having backward-looking causal features that are among the backward-looking causal features of that profile. *Here Q can be P itself*. ... (p. 15; my italics; see also p. 23)

On this account, a property might be second-order in one world (because it is realized by another property in that world), but first-order in another world (because its instantiation is not realized by the instantiation of a distinct property). Hence, a realized property is not essentially nonbasic, or essentially dependent on a distinct property. *Qua* property, it is just like any other, and, of course, as we saw above, it has its own causal profile. As a corollary, suppose that an instance of a realized property is realized by an instance of a *distinct* property (so that the two properties have different causal profiles); then the instances too must be distinct, just as clause [2] says, because they do not instantiate the same causal features (p. 17).

If I am interpreting Shoemaker correctly, his proposed account of what it is for a property to be instantiated strikes me as a combination to his second-order account of same-subject property realization, rather than as something following from or requiring it. Partisans of the standard account of same-subject property realization could accept the proposal as a friendly amendment to their overall position.

How, if at all, is Shoemaker's second-order account able to avoid the "prima facie objection" (p. 11) to the standard second-order account? Shoemaker explains this objection, the objection that his own such account "is designed to avoid," as follows:

[The standard account] seems to make it true, by stipulation, that any causal role we might want to assign to the realized property is preempted by its realizers. So any effects—e.g., wincing—we attribute to someone's being in pain are really due to whatever neural property realized pain on that occasion. And this of course has the consequence that mental properties, if physically realized, are epiphenomenal. (p. 11)

The objection expressed here is obscure; but, given the phrase "by stipulation," it seems clearly *not* to be the common objection that, if a given mental event is underlain by a simultaneous physical event that is sufficient for it, then all the causal work is really being done by the underlying physical event, leaving none to be done by the mental event. Shoemaker's objection must be something different. I think it probably turns on his attribution to the standard account of the way of conceiving second-order properties that, as we have just seen, he rejects, since, a few pages later, he says that, if second-order properties are conceived of as "logical constructions out of their realizers . . . whose instances just are instances of one or another of those realizers," then

. . . it will certainly seem that any causal efficacy we might be tempted to ascribe to [realized properties] is preempted by their realizers. . . . (p. 18)

Why exactly Shoemaker should think this I am not sure. But perhaps the idea is that, if second-order properties are conceived of in the way he rejects, as essentially nonbasic, or essentially dependent, then they do not have any causal features *of their own*; if they have any at all, they have the ones they inherit, so to speak, from their realizers. At any rate, if this idea does express Shoemaker's objection, then it is surely plausible that the objection is avoided if second-order properties are conceived of in the way he proposes, as possibly instantiated without being realized by the instantiation of a distinct property, and hence, just like any other property, as possessing causal features in their own right. As Shoemaker puts it,

The subset account . . . starts with the assumption that the realized property has a causal profile, and nothing in the account takes this assumption back. (p. 13)

II

As we saw at the start, Shoemaker aims to discuss the bearing of his account of realization on, among other things, mental causation. How, then, according to Shoemaker, is mental causation possible, given that all instances of mental properties are physically realized? We have already considered two components of his view: the claim that mental properties have causal features in their own right, and the claim that instantiations of mental properties are distinct from the instantiations of physical properties by which they are realized. Even taken together, however, these elements do not seem to amount to a complete account of mental causation. They entail that instantiations of mental properties can be singular causes. But they do not appear to show how the mental can be causally relevant, that is, how instantiations of mental properties can be singular causes *qua* being instantiations of mental properties. And they do not appear to show what is wrong with the argument that somehow, because it is causally closed, the physical causally excludes the mental. In fact, however, these appearances are largely deceptive; pages 48 and 52–53 are crucial texts here. I shall begin with the threat of causal exclusion.

I think that Shoemaker sees the threat of causal exclusion as arising in two possible ways. It arises in the first way if it arises in the way in which it arises for Donald Davidson's anomalous monism: if mental event *m* causes its effects only because it is identical with some physical event *p* (because the only cause-constituting regularities are the strict laws of physics), then *m* does not cause its effects *qua* mental (p. 48). The second way the threat arises is this: given a Kim-type causal inheritance principle to the effect that the causal powers of a realized property-instance are *identical* with those of the realizing property-instance, "the causal efficacy of the instance of [mental property] P is a manifestation of the causal profile of [the realizing property] R" (p. 53). But Shoemaker's position is immune to both of these forms of the threat. On his view, as we saw in the previous section, the instantiation of a mental property is *distinct* from the physical property instantiation that realizes it; this defuses the first threat. Likewise, the causal powers of the instantiation of a mental property are a proper subset of and hence *not* identical to those of the physical property instantiation that realizes it; this defuses the second threat (but see further below).

Let me turn now to the causal relevance of the mental on Shoemaker's view. As we saw in the previous section, Shoemaker conceives of mental properties as essentially having a causal profile, that is, certain causal features, and hence as essentially conferring certain causal powers on the objects that instantiate them. Although he does not state an account of causal relevance, the following account is plausible and perhaps suggested by his talk of the "manifestation of the causal profile of" a property when an instance of the property causes an effect (p. 53):

The instantiation in object O of property P causes an effect of type E *qua* instantiation of P iff the instantiation in an object of P suffices by itself to bestow on the object the power to cause effects of type E.

When this account of causal relevance is combined with his conception of mental properties, it follows that instantiations of mental properties can cause their effects *qua* instantiations of mental properties.

This account of causal relevance might seem, however, to be a double-edged sword. For if the instantiation in O of P is realized by the instantiation in O of property R, then any causal power conferred on O by its instantiation of P is also conferred on it by its instantiation of R. Is this consequence not a problem? Do we not now have too much causal relevance? Shoemaker acknowledges the consequence, but denies that it is a problem. He allows that if the instantiation in O of P is realized by the instantiation in O of R, then, if the instantiation in O of P causes (i.e., is a cause of) a token effect, the instantiation in O of R *also* causes that very same token effect (p. 53). So, if causal overdetermination occurs whenever the same token effect has two distinct, simultaneous, sufficient (in the circumstances) causes, then this is a case of causal overdetermination. But it is an unproblematic kind of overdetermination. Why? Shoemaker compares it with the case where a man is killed by a single bullet from one member of a firing squad all of whom fired, but all but one of whom missed a vital region of the victim. We can say that the man's death was caused by the firing squad's salvo *or* by the shot of the single shooter who found his mark. Because the salvo had the fatal shot as a *part*, the two explanations do not compete with one another. Likewise, says Shoemaker, with the instantiation in O of property P and the instantiation in O of property R: the former can be viewed as a part of the latter (pp. 13–14; 53).

I think that Shoemaker is right not to be cowed by the charge of causal overdetermination. Ingested poison might shut down one part of a person's brain necessary for continued life at the very moment at which a bullet destroys another part of the same person's brain that is also necessary for continued life. This is the kind of causal overdetermination that people wisely wish to avoid commitment to when they try to accommodate mental causation within non-eliminative physicalism. It involves two distinct and entirely nonoverlapping causal processes, and on other occasions each type of process is sometimes tokened without the tokening of the other. By contrast, the instantiation in O of property P and the instantiation in O of property R, though numerically distinct, overlap spatio-temporally, and no instantiation of property R ever does or even could cause a token effect without some instantiation of property P also causing the same effect. No independently plausible causal exclusion principle shows that causal overdetermination of this second kind is defective or impossible.

However, Shoemaker's approach to mental causation still raises a puzzling question. Let us compare his approach with the nomological approach to mental causation, which can also be used to give an account of mental causation consistent with a realization formulation of physicalism.⁵ According to the nomological approach, it is because instantiations of mental properties are subsumed as such by nonfundamental mental-to-mental or mental-to-physical

5. See A. Melnyk, *A Physicalist Manifesto: Thoroughly Modern Materialism* (Cambridge University Press, 2003), Ch. 4.

cause-constituting laws that instantiations of mental properties cause effects, and mental properties are causally relevant; and instantiations of mental properties can be subsumed by such laws even though the physical property instantiations that realize them are themselves subsumed as such by fundamental physical-to-physical cause-constituting laws. Now any such nomological approach to mental causation needs to overcome the objection that, although nonfundamental mental-to-mental or mental-to-physical laws do exist, they are not cause constituting, being instead mere correlational shadows cast by the genuinely cause-constituting laws of fundamental physics.⁶ And overcoming this objection is a major theoretical challenge, since it requires giving an account of what distinguishes laws that are cause constituting from laws that are not, and then showing that nonfundamental mental-to-mental or mental-to-physical laws are among those that are cause constituting, notwithstanding their being nonfundamental.

The question is this: how exactly does Shoemaker's approach avoid something like this objection? Of course, Shoemaker's view is not that being subsumed by a suitable law *constitutes* having a causal power; rather, on his view, such causal laws as there are *describe* the causal powers that things antecedently have. Still, he must allow that sometimes, what initially appears to be a causal law turns out on closer inspection not to be one, that is, not in fact to describe causal powers. **And the worry about mental causation is precisely that what initially appear to be causal laws describing causal relations among mental property instantiations might, given the physical realization of all such instantiations, turn out not really to be so.**



Now, as far as I can see, the answer to my question is that Shoemaker simply "starts with the assumption that the realized property has a causal profile" (p. 13); so whenever the realized property is a mental property, he simply assumes that the mental property has a causal profile. But if making this assumption is legitimate, then why is it not legitimate (as I assume it is not) for a friend of the nomological approach simply to assume that the non-fundamental mental-to-mental or mental-to-physical laws that subsume instantiations of mental properties are cause constituting? I expect that Shoemaker can satisfactorily answer this question, but I do not at the moment see how.

III

As noted above, Shoemaker's third main account of realization is of micro-realization, in which the instantiation of a property in a macroscopic object is realized in a microphysical state of affairs. According to a preliminary formulation,

. . . a microphysical state of affairs is a realizer of an instance of a particular property . . . if it is of a type of microphysical states of affairs having a causal

6. Counterfactual approaches to mental causation face essentially the same objection.

profile that corresponds in an appropriate way to the causal profile of the property. (p. 39)

I have two comments on Shoemaker's account of microrealization.

First, I am puzzled why he finds such an account to be necessary in the first place. Certainly "we need an account of realization that gives a role to the properties of micro-entities and other parts of macroscopic objects" (32), but, *pace* Shoemaker, one of his existing accounts of realization seems quite able to do so, at least if in all other ways it is satisfactory. I have in mind his account of different-subject property realization, in which an object's instantiation of a property is realized by the instantiation of a different property in some object numerically distinct from but still coincident with the first object; his paradigm of such realization is the realization of the mental properties of a *person* by the physical properties of the person's distinct but coincident *body*. Now suppose we let the realizer in such a case be the instantiation of some enormously complex microphysical property (microphysical because still expressible in the language of microphysics) in some enormously complex microphysical system; surely we have thereby given "a role to the properties of micro-entities", as desired. I don't know why Shoemaker would disallow such a realizer.

My second comment is that Shoemaker's proposed account of microrealization does not seem to give us a sufficient condition for the instantiation of a macroscopic property in a particular macroscopic object at a particular time. Shoemaker writes as follows:

... in order for a series of collections of microphysical states of affairs to constitute the career of a persisting object, the microphysical states of affairs must belong to types such that there is an isomorphism between the causal profiles common to members of these types and the causal profiles of properties instantiated in the career of the object. (p. 40)

What exactly this isomorphism amounts to, and why it has supplanted the subset relation, I am unable to say; but let that pass. What matters is the sequel:

Such an isomorphism will pair types of microphysical states of affairs with properties; and a particular microphysical state of affairs will realize a particular property instantiation just in case the state of affairs belongs to a type that is paired with that property. (pp. 40–1)

While the second half of this sentence may indeed state a sufficient (and necessary) condition for a particular microphysical state of affairs to realize *some or other* instantiation of a given property, it certainly does not state a sufficient condition for the instantiation of a given property in a given object at a given time to be microphysically realized. For the following conditional is false:

The instantiation at a time, *t*, in an individual object, *o*, of a macroscopic property, *Q*, is microphysically realized by a particular microphysical state

of affairs, S, if S exists at t and belongs to a type of microphysical state of affairs that is paired by the relevant isomorphism with Q.

This conditional is false, since nothing in its antecedent ties S to the *particular* property instantiation mentioned in its consequent. So Shoemaker's account of microrealization at least needs to be modified to remove this difficulty. The difficulty is avoided in his account of same-subject property realization, because in that account both the realizing property and the realized property are instantiated in the same object, and the difficulty is avoided also in his account of different-subject property realization, if its appeal to the relation of coincidence between distinct objects can be spelled out.