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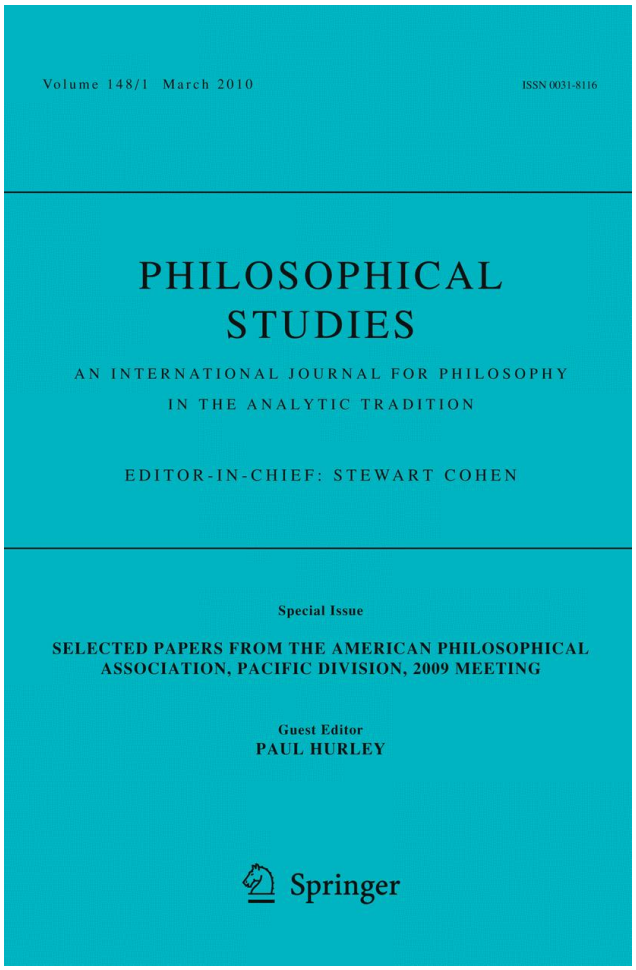

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Comments on Sydney Shoemaker's *Physical Realization*

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Abstract This paper interprets and criticizes some of the views presented in Sydney Shoemaker's book, *Physical Realization* (Oxford University Press, 2007), on the topic of how mental properties are realized by physical properties, given that, on his view, human persons are not even token-identical with human bodies.

Keywords Sydney Shoemaker · Metaphysics of mind · Physical realization

This is an excellent book. I have learnt much from working through it, and what has not persuaded me I still admire. On this occasion, however, I shall address only one theme from it.[1]

Professor Shoemaker endorses physicalism, which he understands to be "the view that all states and properties of things, of whatever kind, are physical or physically realized" (Shoemaker 2007, p. 1). Since he holds that mental properties aren't physical, he holds that they're physically realized. But his view of *how* mental properties are physically realized is complicated by his conviction that, even though every human person *coincides* with some human body and some human animal, no human person is *identical* with any human body or human animal.[2]

[1] It was a pleasure and a privilege to present these comments on April 10, 2009 in an Author-Meets-Critics session organized by Amy Kind at the 2009 Pacific Division meeting of the APA in Vancouver, Canada.

[2] A human animal is simply a member of the species, *Homo sapiens*.

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In these comments, I will expound Shoemaker's subtle view of how mental properties are physically realized and then ask seven critical questions about it. By way of background to my exposition, here is his account of the *first* of the three kinds of realization that he distinguishes (Shoemaker 2007, p. 12):

> The instantiation at t in an individual entity, e, of a physical property, P, *realizes*$_1$ the instantiation at t in e of a distinct mental property, M, iff

(i) e instantiates both P and M at t,
(ii) the forward-looking causal features of M form a proper subset of the forward-looking causal features of P, and
(iii) the backward-looking causal features of P form a proper subset of the backward-looking causal features of M.

Intuitively, Shoemaker takes properties to be defined by their causal features. Hence, if the causal features definitive of M form a proper subset of those definitive of P, an entity's instantiation of P necessitates the presence of those causal features definitive of the entity's instantiation of M.

Shoemaker's realization$_1$ may initially seem to differ from a more familiar kind of realization in which realized properties are higher-order properties defined in terms of some or other lower-order property that plays a certain causal role. In fact, however, as Shoemaker points out, these "two" kinds of realization amount to the same thing (Shoemaker 2007, p. 14). We could equally well characterize realization$_1$ as follows, which differs from Shoemaker's characterization in clauses (ii*) and (iii*):

> The instantiation at t in an individual entity, e, of a physical property, P, *realizes*$_1$ the instantiation at t in e of a distinct mental property, M, iff

(i*) e instantiates both P and M at t,
(ii*) for any x, for x to instantiate M just is for x to instantiate some or other property that, whatever else it does, at least plays causal role, R, and
(iii*) P at least plays causal role R.

However, if realization$_1$ is invoked to spell out the claim that mental properties are physically realized, it leads, as follows, to a problem that Shoemaker calls the "too many minds" problem (Shoemaker 2007, pp. 7, 30, and 91):

> Let "P" name me, and let "B" name my body. Then:

1. P $\neq$ B [From his neo-Lockean account of personhood.]
2. P instantiates mental properties. [Trust me on this!]
3. Instantiations of physical properties in B *realize*$_1$ instantiations of mental properties. [From his physicalism, plus the assumption that realization$_1$ is the only kind of realization.]
4. If instantiations of physical properties in B *realize*$_1$ instantiations of mental properties, then the instantiations of mental properties realized by instantiations of physical properties in B are themselves in B. [From the definition of realization$_1$.]

5. If the instantiations of mental properties realized by instantiations of physical properties in B are themselves in B, then B instantiates mental properties and P instantiates mental properties. [Trivially and from 2.]
6. So, B and P—two distinct entities—both instantiate mental properties. [From 1, 3, 4, & 5.]

Shoemaker finds the conclusion of this reasoning unacceptable. So he responds by denying premise 3, i.e., by denying that instantiations of physical properties in B *realize*$_1$ instantiations of mental properties. In doing so, however, he incurs two obligations. The first is to explain why he isn't committed to premise 3 willy-nilly—why B's physical properties *don't* realize$_1$ mental properties, even though, given physicalism, B has all it takes somehow to realize mental properties. The second obligation he incurs is to define a second kind of realization, one that can appear in his claim that mental properties are physically realized, but that doesn't lead to the problem of too many minds.

In discharging these obligations, Shoemaker appeals to an important distinction that he draws between two kinds of properties. The idea is that some properties can't—metaphysically—be instantiated except by entities of certain kinds. These are what he calls the *thick* properties, the "ones whose causal profiles…limit their instantiation to things of a particular kind" (Shoemaker 2007, p. 29); they "can belong only to things that are of certain sorts and *have certain persistence conditions*" (Shoemaker 2007, p. 7; my emphasis). Thin properties, on the other hand, are properties with causal profiles that *don't* "limit their instantiation to things of a particular kind, things having particular persistence conditions" (Shoemaker 2007, p. 29). Thin properties can therefore be shared by coincident entities of different kinds, e.g., by persons and their bodies. Shoemaker applies the thick/thin distinction to mental and to physical properties. He holds that mental properties, including that of being in pain, are thick (Shoemaker 2007, p. 7), since "they can be instantiated only in entities having psychological persistence conditions" (Shoemaker 2007, p. 114), these entities, for Shoemaker, being persons. Among physical properties, some are thin, but others are thick. Mental properties, being thick, must be realized (i.e., realized$_1$; see Shoemaker 2007, p. 30) by thick physical properties (Shoemaker 2007, p. 7).

Now for Shoemaker's first obligation. Why, according to him, doesn't B—my body—realize$_1$ mental properties, despite its having all it takes somehow to realize mental properties? The reason is that mental properties can only be instantiated by entities with psychological persistence conditions; since human bodies (and indeed human animals) don't have psychological persistence conditions, human bodies (and human animals) can't instantiate mental properties. And it follows that the physical properties of human bodies (or of human animals) can't realize$_1$ mental properties *in human bodies (or human animals)*, since doing so would entail that human bodies (or human animals) instantiate mental properties.

It remains true, however, that my body has what it takes *somehow* to realize mental properties. It has what it takes to realize a *distinct entity*, viz., me, a person, which person (not my body) instantiates mental properties. But that is the only way in which the physical properties of my body can realize mental properties—by

realizing an entity that is neither body nor animal, and that possesses the psychological persistence conditions necessary for it to instantiate mental properties.

This kind of realization, of course, can't be realization$_1$, since, when realization$_1$ holds, the same entity instantiates both the realized property and the realizing properties. Shoemaker characterizes this second kind of realization relation—realization$_2$—by specifying three separate conditions each of which is sufficient for it to hold (Shoemaker 2007, pp. 29–31). The sufficient condition that concerns us now is this, where "P" names a certain thin physical property, "M" names a certain thick mental property, and "e" and "f" name distinct but coincident entities:

e's being P realizes$_2$ f's being M if

(i) e instantiates P, and
(ii) f instantiates some sortal property, S, such that the conjunction of P with S realizes$_1$ M.[3] (Shoemaker 2007, p. 30)

Condition (ii) may initially appear to make no sense, since realization$_1$ is ill defined in any case, like this one, in which no single subject instantiates both P and S, while P is instantiated by e and S is instantiated by f. But such an appearance is misleading. For Shoemaker holds that "coincident objects necessarily share their thin properties" (Shoemaker 2007, p. 30), which entails that, since e instantiates P, and since e and f are coincident objects, f instantiates P also. Therefore, this sufficient condition for realization$_2$ can be re-written as follows, where, as before, "P" names a certain thin physical property, "M" names a certain thick mental property, and "e" and "f" name distinct but coincident entities:

e's being P realizes$_2$ f's being M if

(i*) e instantiates P, *so that f instantiates P also*, and
(ii*) f instantiates some sortal property, S, such that the *joint instantiation in f of P and S realizes$_1$ the instantiation in f of M*.

An illustration (see Shoemaker 2007, p. 30): my being in pain can be said to be realized$_2$ by my body's instantiation of C-fiber firing, because my body instantiates C-fiber firing, I therefore instantiate C-fiber firing (because I'm coincident with my body), I instantiate the sortal property of being a person, and my instantiation of C-fiber firing and being a person realizes$_1$ my being in pain.

Realization$_2$, of course, is exactly what Shoemaker needs to discharge his second obligation. For he can invoke realization$_2$ in his claim that mental properties are physically realized. But doing so doesn't lead to the problem of too many minds, since, if the thin physical properties of my body realize$_2$ the thick mental properties of me, then those realized mental properties are instantiated only by me, and not also by my body.

[3] I assume that, for Shoemaker, a sortal property is one the instantiation of which by an entity entails certain persistence conditions for that entity.

Let me now turn from exposition of Shoemaker's view of how mental properties are physically realized to my seven questions about it. I should stress, however, that my questions will not be rhetorical; I won't be at all surprised if they turn out to rest on misunderstandings or to have entirely satisfactory answers.

1

Shoemaker's plan for avoiding the "too many minds" problem requires mental properties to be thick properties. Specifically, it requires the thesis that mental properties, including phenomenal mental properties, can be instantiated only by continuants with psychological persistence conditions:

For all mental properties M and objects x, x instantiates M only if x has psychological persistence conditions.

But how plausible is this specific thesis about mental properties?

One consideration against it is that some animals, e.g., cats and dogs, instantiate mental properties, but are not persons in any sense entailing that they have psychological persistence conditions; they have only animal persistence conditions. No doubt feline and canine minds are simple in comparison to ours, but they are still minds.

What considerations favor the thesis? Shoemaker doesn't argue for it in the present book, but his 1984 discussion of personal identity sheds light on the matter. There he sketches a functionalist account of the persistence conditions of persons—of persons in the sense in which biologically normal, adult humans are persons. The rough idea is that personal identity over time consists in psychological continuity, which in turn consists in chains of appropriately caused psychological connectedness between temporal stages of the career of the person (Shoemaker and Swinburne 1984, p. 90). Psychological connectedness between temporal stages of the person's career is a matter of the person's mental states cooperating with one another to cause later mental states of the same person in accordance with their functional natures (Shoemaker and Swinburne 1984, pp. 95–96).

However, I don't see how Shoemaker's account of personal identity and personhood could get him the thesis he needs. His account arguably entails that mental properties, given the causal roles that define them, can only be instantiated by continuants that have a career of non-zero extent; otherwise instantiations of mental properties couldn't cause later instantiations of mental properties in the same bearer. But his account doesn't seem to entail that these continuants have to have psychological persistence conditions. These continuants do indeed have to be capable of instantiating other mental properties. But that doesn't entail that the continuants have to be persons in Shoemaker's sense unless we already assume precisely the thesis at issue, viz., that mental properties can be instantiated only by continuants with psychological persistence conditions.

Again, Shoemaker's account entails that persons in his sense are necessarily bearers of mental properties; but the converse—that mental properties are necessarily borne by persons—doesn't follow. That mental properties play an essential role in the persistence conditions of continuants of a certain kind doesn't

entail that these properties can be instantiated *only* by continuants of that kind. Perhaps it's a persistence condition of a ship that its parts remain organized ship-wise; but if so, it doesn't follow that being organized ship-wise can't be instantiated by a non-ship, for it can: an example would be an object invisible to the naked eye but composed of microphysical particles organized ship-wise.

Shoemaker offers an argument (Shoemaker and Swinburne 1984, p. 102) concluding, roughly, that having beliefs and desires requires self-consciousness—which might, I allow, be sufficient for personhood in Shoemaker's sense. Now is not the time to discuss this argument, but I am doubtful that every kind of mental state requires self-consciousness; pain, for example, seems very widely distributed among animals that presumably lack self-consciousness.

So I'm still left wondering whether mental properties are really thick in the way that Shoemaker claims them to be.

2

Shoemaker would presumably want to appeal to the thick/thin distinction and realization$_2$ in *any* case in which a pair of distinct but coincident objects generates the problematic doubling of property-instances. My second question, then, is a request—for an illustration of how this appeal would work for pairs of distinct but coincident objects other than persons and their bodies. I seek reassurance that the properties that would need to be thick for the appeal to the thick/thin distinction and realization$_2$ to work are in fact thick.

3

My third question concerns thickness in general. It is certainly plausible that some properties can't—metaphysically—be instantiated except by entities of certain kinds. But it doesn't follow that the *reason* for this is that these properties are thick, i.e., incapable of being instantiated by x *because* x has the wrong sort of persistence conditions. For example, the property of *being divisible by three* seems to be one that this building not only doesn't instantiate but can't instantiate; but surely that isn't because this building doesn't have the right persistence conditions, for numbers can be divisible by three and yet numbers have no persistence conditions at all. And in case examples involving abstract objects are suspect, here's another: the property of *being red* seems on reflection to be one that no electron does or even could instantiate, but there are no special persistence conditions that an object needs in order to be red.

So my third question is: why believe in thickness? That is, why believe that any of the properties we find in the world—non-gerrymandered properties in good standing—are thick? Thick properties are conceivable, at least in the sense that we can say what it is for a property to be thick without obvious self-contradiction; but why think they're actual?

4

Shoemaker invokes realization$_2$ and the distinction between thick and thin properties in order to avoid being committed to the view that distinct entities—e.g., my body and I—both instantiate mental properties. But his plan to avoid the doubling of mental property-instances only works because mental properties are, as he believes, *thick* properties. So his plan could not serve to avoid the doubling of instances of *thin* properties. How, therefore, is the doubling of *thin* property-instances to be avoided?

5

Perhaps, however, there is no need to avoid it, because it is unobjectionable. And presumably Shoemaker's view is precisely this, since he actually insists that a person and her body, being coincident objects, both instantiate the same thin physical properties, e.g., they both instantiate C-fiber firing. But if Shoemaker finds the doubling of thin property-instances acceptable, what does he find unacceptable about the doubling of instances of thick mental properties? This is my fifth question. The answer cannot just be that we find it very odd to think that whenever I am in pain, my body—a distinct object—is in pain too, because we also find it very odd to think that whenever I step on the bathroom scale there are two objects, each weighing 200 lbs, pushing down on it, i.e., me and my body. On the other hand, of course, the idea that there are two objects, each weighing 200 lbs, pushing down on the scale loses its sting once it has been explained that the two objects have exactly the same physical parts. So one wonders why the idea that my body and I are both in pain does not also lose its sting once it has been explained that my body and I also have exactly the same physical parts. The answer to this fifth question should also make it clear whether the doubling of *all* thick property-instances would be a problem, as I have assumed, or whether the doubling of only some would be a problem.

6

Because Shoemaker's problem of too many minds arises only if persons are distinct from their bodies, it is tempting to avoid the problem—and obviate the need to posit a second kind of realization[4]— by insisting that persons are identical with their bodies. The suggestion is not, of course, that being a person and being a human body are one and the same property, nor is it that every individual person is one and the same as some or other individual human body; rather, it's that human persons like you and me are one and the same as our respective bodies. Identifying persons

[4] Compare: "There is need for the relation of realization$_2$ if, and probably only if, there can be [distinct but] coincident entities, and properties in one of a pair of coincident entities can be said to realize properties of the other" (Shoemaker 2007, p. 29).

with their bodies—and, more generally, identifying coincident objects with one another—also avoids a second problem, which is this. On the one hand, we want it to turn out to be straightforwardly true that I (and not just my body) weigh 200 lbs, that my knife, which is made of steel, conducts electricity, while my fork, which is made of plastic, does not, that the book in my bag is combustible, and so forth. On the other hand, if objects are not identified with the coincident objects that constitute them, it's not clear why such propositions should turn out to be true. For example, my knife is constituted by a certain piece of steel formed into a certain shape, and the piece of steel conducts electricity. But why exactly must it also be true that the *knife* conducts electricity? We can't answer this question in the obvious way—by appealing to Leibniz's Law—unless we *identify* the knife with the piece of steel.

As far as I can see, Shoemaker runs into this second problem, given his view of the relations between persons, bodies, and the microphysical states of affairs that realize them. On this view, of course, a person and her body are distinct but coincident objects, and both are micro-physically realized.[5] He says that coincident objects "occupy the same place and are composed of the same matter" (Shoemaker 2007, p. 88). What does he mean by "composed of the same matter"? He holds (Shoemaker 2007, pp. 89–90) that a persisting object—a continuant—is physically realized by a sequence of collections of microphysical states of affairs that partially overlap with one another. So you might think that two coincident objects are "composed of the same matter" in the sense of being realized by the very *same* sequence of collections of microphysical states of affairs that partially overlap with one another. But that's not quite what he means. On his view, at any instant during the career of a persisting object, the partially overlapping microphysical states of affairs that realize the object at that instant will have the same microphysical entities as constituents (Shoemaker 2007, p. 89), that is, will involve the same *swarm*, as it were, of microphysical entities, where a swarm is individuated only by its constituents and their spatiotemporal interrelations, and hence individuated more coarsely than a microphysical state of affairs.[6] Two coincident objects, e and f, then, are "composed of the same matter" in Shoemaker's sense iff at any time, t, at which both e and f exist, the partially overlapping microphysical states of affairs that realize e at t and the partially overlapping microphysical states of affairs that realize f at t have the very same microphysical entities as constituents, i.e., involve the very same swarm of microphysical entities. So, according to Shoemaker, a person and her body are distinct, and each is distinct from the swarm of microphysical entities that their respective microphysical realizers share. In that case, however, how does the *person* get to weigh 120 lbs—if that is what she weighs? Why doesn't her body, which does have physical properties, constitute a distinct person who *doesn't* have physical properties, though of course she (the person) does have physically realized properties? Since I assume that she weighs what her swarm weighs, the question can be rephrased like this: how does her *swarm's* weight become *her* weight, given that

[5] In a third, as yet unmentioned sense, of "realized".

[6] Microphysical states of affairs are individuated more finely than swarms of microphysical entities, since the former are individuated by the properties of, and relations among, the microphysical entities involved in them, and not just by the microphysical entities themselves.

she is *distinct* from the swarm? It is tempting to answer that she weighs whatever is the sum of the weights of her physical parts. But this answer just assumes that the physical parts of her *swarm* are also physical parts of *her*, whereas it isn't obvious that she even *has* any physical parts, given that she is distinct from her swarm (though of course her swarm does). It is also tempting to answer that she weighs what her swarm weighs because *any* micro-physically realized item weighs what its swarm weighs. But you cannot explain how she comes to weigh what her distinct swarm weighs just by answering that *all* micro-physically realized items come to weigh what their distinct swarms weigh; that answer merely draws attention to other instances of the same puzzle.

The fact that treating coincident objects as distinct generates these two problems intensifies the need to scrutinize the rationale for doing so. Shoemaker very briefly presents two arguments to show that such entities as persons and statues are distinct from the bodies and pieces of clay that respectively constitute or realize them (Shoemaker 2007, p. 29). Both arguments invoke Leibniz's Law to deduce non-identity, but they appeal to different kinds of properties. The first argument claims that, say, a statue and its coincident piece of clay differ in certain of their *modal* properties, for example, the property of being able to survive being formed into a sphere, which the piece of clay has, but the statue lacks. The second argument claims that the statue and its coincident piece of clay differ in certain of their *historical* properties, the statue having come into existence later than the piece of clay did.

Shoemaker advances the argument that appeals to historical properties with some hesitation, and I suspect he is right to do so. I agree that the statue is distinct from the *portion* of clay in question. But the best candidate for identity with the statue is the piece of clay, so long as it is actually playing the statue-role, i.e., the statue-shaped piece of clay that is a *time-slice* of the portion of clay in question; and this piece of clay comes into existence and passes out of it exactly when the statue does so.

The argument that appeals to modal properties is what prompts my sixth question: what is the story, even very roughly, about the metaphysics and epistemology of these modal properties—properties which must, of course, be sufficiently objective to fall within the scope of Leibniz's Law in order for the argument to work?[7] The question gains urgency if one's overall metaphysics is physicalist, because, given physicalism, it isn't clear that such a story can be told. Suppose that both the statue and its coincident piece of clay have a certain shape, but that the statue alone has that shape essentially. If physicalism is true, then the statue's essential possession of that shape must somehow be physically realized; but how? There seems to be no difference between the physical realization of the *piece of clay's* shape and the physical realization of the *statue's* shape, and therefore nothing physical to ground the distinction between possessing the shape accidentally and possessing it essentially. In response, it is natural to propose that the distinction between essential and accidental properties is grounded—somehow—in *mental* phenomena. This proposal also acknowledges that, for a physicalist, the

[7] Aside from some very brief remarks (Shoemaker 2007, pp. 112–113).

statue's essential possession of its shape must be something that lies within the ken of a physically realized mind. However, the proposal runs the risk of implying that the essential rather than accidental possession of a property by an object is not an objective feature of the object, i.e., a feature that the object has independently of how we think or speak of the object. I note, without endorsing it, that David Lewis's account of essential attribution, in his "Counterparts of Persons and Their Bodies" (Lewis 1971), has exactly this implication.

7

Shoemaker's account of the physical realization of mental properties is intended to avoid implying that a person and her body instantiate exactly the same mental properties at the same time. But I wonder whether it really does avoid this implication. To see why, let us briefly review the account. Let "P" name a certain thin physical property, "M" name a certain thick mental property, "b" name a particular body, "p" name a distinct but coincident person, and "S" name the sortal property of being a person; then

b's being P realizes$_2$ p's being M if

(i*) b instantiates P, so that p instantiates P also, and
(ii*) p instantiates S, and the joint instantiation in p of P and S realizes$_1$ the instantiation in p of M.

This account certainly *seems* to avoid implying that b and p instantiate M. For while b instantiates the physical property, P, it is only by instantiating P *and S, the property of being a person,* that an object can realize$_1$ mental property, M; and b does *not* instantiate S. But *why* does b not instantiate S? This is my seventh and final question; I don't understand why body b isn't a person, *given* the physicalist assumption that persons are realized by their bodies.

Here's the puzzle. Since the instantiation of S in p must be physically realized somehow, and since p and b coincide, surely the instantiation of S in p must somehow be realized by the instantiation in b of certain of b's physical properties. But the realization in question can't be realization$_1$, since that would entail that b instantiates S, i.e., that b is a person, which is precisely the conclusion to be avoided. Might the realization in question, then, be the other kind of property-realization that Shoemaker posits, i.e., realization$_2$? Yes, it might; but in that case the story would have to be that b can't instantiate S because it has the wrong sort of persistence conditions, i.e., because it lacks some further sortal property (i.e., one distinct from S), and then the puzzle would arise all over again, this time concerning why b doesn't instantiate the new sortal property, given that this property is either physical or physically realized. So it's not at all obvious how to combine the view that b isn't a person with the view that b physically realizes personhood. Now Jaegwon Kim has pressed the following question about the whole realization approach: how can the instantiation of certain properties in an object give rise—non-causally—to new instances of distinct (i.e., functional) properties? I suspect the

present puzzle is connected with an obvious variant of Kim's question: how can the instantiation of certain properties in an object give rise—non-causally—to a new and distinct object?

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