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Against Reductive Physicalism: Causation Without Reduction

Physicalists, it is safe to say, are typically reductionists—philosophers who hold that all entities and properties are completely decomposable into microphysical entities and properties. Or as Jaegwon Kim put it,

The core of contemporary physicalism is the idea that all things that exist in this world are bits of matter and structures aggregated out of bits of matter, all behaving in accordance with laws of physics, and that any phenomenon of the world can be physically explained if it can be explained at all. (Kim, 2000, pp. 149-50).

Kim has been influential in further arguing that if the mental has any causal efficacy, then our only choice is between reductive physicalism and mind-body dualism. (Kim, 2005, p. 54; Kim, 1998, pp. 119-20).¹ My aim is to show that Kim's dichotomy is not exhaustive: there is a third option for mental causation and more broadly for intentional causation—a nonreductive option that avoids both dualism and reductionism.

Since mental causation has traditionally been the stumblingblock for mind-body dualism, for purposes here, I shall put aside mind-body dualism, and take the competitors to be reductive physicalism and nonreductive materialism. (I don't say 'nonreductive physicalism', because many physicalists would deny that my weak version of materialism deserves the name 'physicalism'.) My target is Kim's reductive physicalism—a view that he supports largely by arguing against nonreductionism.

¹ I'm putting aside worries about qualia here. The physicalism that Kim says is "near enough to the truth" —physicalism that cannot accommodate what ammonia smells like or what yellow looks like—is reductive physicalism. (Kim (2005))

Here is my plan: First, I shall critically examine Jaegwon Kim's strongest argument against nonreductive mental causation, and then show that his argument generalizes to a huge class of nonmental intentional properties that we use successfully in causal explanations and predictions. If Kim is correct, then we have the unhappy conclusion that there is no nonmental intentional causation whatever—e.g., advertising never has caused increased sales of any product, and outlawing smoking on airplanes never had any effect. These are empirically false consequences. So, we shall have reason to think that Kim is not correct. Next, I shall formulate a nonreductive version of intentional causation generally and show how it vindicates mental causation without reduction. If physicalism involves commitment to reductionism, then I am no physicalist. However, the view that I shall propose—the property-constitution view—is compatible with global supervenience. So, I am not a dualist either. I hope to show that there genuinely is a third way.

Kim's Argument Against Nonreductive Mental Causation

I shall focus on what I call Kim's 'Key Argument.'² [I'm putting aside Kim's argument concerning overdetermination.] The Key Argument relies on the following metaphysical assumptions:

1. The Physical Realization Thesis: A mental property is instantiated only if it is realized by a physical property. If P realizes M, then P is nomologically sufficient for M, and M supervenes on P. (Kim (1993b), p. 200.)
2. The Nomological-Sufficiency Conception of Causation: A causes B only if A is nomologically sufficient for B. (Kim (1993b), p. 204)

² Kim argues that unless mental properties are reducible to physical properties, they are causally inert or else there is massive (and implausible) overdetermination. Kim (1998). Many philosophers have argued that if there is any overdetermination of mentally-caused physical effects, it is harmless. (E.g., see Thomasson (1998), Pereboom (2002), Loewer (2002), and Crisp and Warfield (2001).) Indeed, if it turns out that there is no fundamental microphysical level—and for all we know, there is no fundamental level (Schaffer 2003)—we cannot deny overdetermination anyway, lest all the causal powers drain away. So, we may have to countenance overdetermination in any case. (The Exclusion Problem is just overdetermination.)

3. The Causal-Realization Principle: If an instance of S occurs by being realized by an instance of Q, then any cause of this instance of S must be a cause of this instance of Q (and of course any cause of this instance of Q is a cause of this instance of S). (Kim (1993b), pp. 205-6; cf. Kim (2000), p. 310.)
4. The Causal-Inheritance Principle: If mental property M is realized in a system at t in virtue of physical realization base P, the causal powers of this instance of M are identical with the causal powers of P. (Kim (1993a), p. 326)
5. The Causal-Closure Principle: Any physical event that has a cause at t has a complete physical cause at t. (Kim (1993c), p. 43.)
6. The Principle of Causal/Explanatory Exclusion: There is no more than one complete and independent cause (or causal explanation) of any event. (Kim (1989), p. 89)

The Key Argument: After stating Kim's Key Argument against nonreductionism (as (a) – (d) below), I'll defend each of its premises by a subargument, and show (by means of a *reductio ad absurdum*) that the Key Argument is valid. However, I shall argue later that, because two of Kim's assumptions are false, the Key Argument is unsound.

Say that a mental property is irreducible if and only if there is no physical property, such that instances of the mental property are identical to instances of the physical property.³ Then Kim's Key Argument against nonreductive materialism is this:

- (a) If mental properties are both irreducible and causally efficacious, then there is downward causation by irreducible mental properties.
- (b) If there is downward causation by irreducible mental properties, then there are two distinct nomologically sufficient conditions of a single event.

³ This is an awkward way to put it, but Kim construes identity of instances of a mental property, M, with instances of a physical property, P, to require "either property identity M = P or some form of reductive relationship between them." Kim (2005), p. 42, n. 9.

- (c) There are not two distinct nomologically sufficient conditions of a single event.

∴(d) Mental properties are not both irreducible and causally efficacious.

Now turn to the arguments for the Premises (a) – (c). I'll present the argument for the conclusion that mental properties are not both irreducible and causally efficacious (d) as a *reductio ad absurdum*. If we suppose that the conclusion is false (i.e., that mental states are both irreducible and causally efficacious), then, given Kim's assumptions, we get a contradiction. For the reductio, assume that M is an irreducible and causally efficacious mental state and that M causes M*, and that M and M* are realized by physical states, P and P*, respectively, and that $M \neq P$ and $M^* \neq P^*$.⁴

Argument for Premise (a):

1. M causes M*. (supposition for reductio)
2. If M causes M*, then M causes P*. (Causal Realization Principle)
- ∴3. M causes P* (1,2 MP)

Argument for Premise (b):

4. If M causes P*, then M is nomologically sufficient for P*. (Kim's Nomological-Sufficiency Conception of Causation)
5. M is nomologically sufficient for P* (3,4 MP)
6. P is nomologically sufficient for P*. (Causal-Closure Principle + Kim's Nomological-Sufficiency Conception of Causation)
- ∴7. M and P are distinct nomologically sufficient conditions for P*. (5,6 conjunction + assumption that $M \neq P$)

Argument for Premise (c):

8. P is nomologically sufficient for M. (Physical Realization Thesis)

⁴ I am using the terms 'mental state' and 'physical state' to refer to particular instances of the mental and physical properties, respectively. In the text, 'M' and 'P' stand for property-instances.

9. If 7 & 8, then P is the only genuine cause of P*. (Causal-Closure Principle + Principle of Causal/Explanatory Exclusion)
- ∴ 10. P is the only genuine cause of P*.
11. If P is the only genuine cause of P* and $M \neq P$, then M does not cause P*.
(conceptual truth)
12. If M does not cause P*, then M does not cause M*. (Causal-Realization Principle)
- ∴ 13. M does not cause M*. (10-12 MP twice)

Hence, *given Kim's assumptions*, the supposition that one irreducible mental state causes another leads to a contradiction (1 and 13). So, it appears that if mental states are irreducible, then they are causally inert, and epiphenomenalism carries the day. I shall respond to the Key Argument by proposing a different model—a model of nonreductive causation, which, if correct, shows that the Key Argument is unsound. (In particular, lines (2) and (8) are false.) Before proposing my own model, however, I want to revisit an old controversy between Kim and me (and others) about the scope of Kim's conclusion.

Does Kim's Key Argument Generalize to Nonmental Macro-Causation?

I argued some years ago that if Kim's argument is sound, then *no* macrophysical properties are causally efficacious. Kim responded that many macrophysical properties are causally efficacious because they are micro-based.⁵ A micro-based property (like the property of weighing 10 kg) has instances that are completely decomposable into “micro-parts of the object that has it and the properties and relations characterizing these parts.” (Kim, 1998, p. 84) Micro-based properties are macroproperties that are just aggregates of microphysical properties (Kim (1998), p. 114).

Even if Kim takes micro-based macroproperties to be causally efficacious, however, there remains a huge class of nonmental properties that will be rendered epiphenomenal by his view⁶. This class includes the nonmental intentional properties

⁵ For some of the arguments to which Kim responds, see Baker (1993), Burge (1993), van Gulick (1993), and Block (2003)..

⁶ Kim accepts Alexander's Dictum, according to which “to be real is to possess causal powers.” (Kim 1992, p. 134). So, his view will render the properties appealed to by psychology and the social

that make up causal explanations in economics, psychology, and political science, as well as in everyday life—properties like being employed, being jealous, being legislated. If I am right, these properties provide an enormous set of counterexamples to Kim’s view. The properties that I take to be counterexamples are properties without which we cannot begin to make sense of the world that we encounter.

I shall coin the term ‘intention-dependent’ or, for short, ‘ID’ for such properties. ID properties are properties that cannot be instantiated in a world without entities with propositional attitudes—e.g., being in debt, being a driver’s licence, being a delegate. Nobody can be in debt and nothing can be a driver’s license in a world without entities with propositional attitudes. Use the term ‘intention-dependent’ property—or ID property—for any property that either is a propositional-attitude property (like believing, desiring or intending) or is one whose instances presuppose that there are entities with beliefs, desires and/or intentions.⁷ These are properties, nonmental as well as mental, whose instances depend on there being creatures with intentionality. ID properties that we are familiar with include being a wedding, being a floor waxer, being a treaty, and so on. All artifacts and artworks, and most human activities (getting a job, going out to dinner, sending an email), are ID phenomena: ID properties could not exist or occur in a world without beliefs, desires, and intentions.

I do not believe that we can make sense of the world without supposing that ID properties are causal properties.⁸ Without ID properties, we could explain almost nothing that happens in the world—a dean’s cutting the departmental budget, a country’s going to war, a business’s going bankrupt. However, it is highly unlikely that on Kim’s account, ID properties would turn out to be causally efficacious. An ID property is causally efficacious on Kim’s view only if it meets three conditions: First, it must be “functionalized”. That is, it must have a functional definition in terms of having some property that plays a particular causal role. Second, there must be a physical realizer in a sciences nonexistent.

⁷ Thanks to Gary Matthews for the label.

⁸ By ‘causal properties,’ I mean roughly the properties in virtue of which an object can have some effect: Property P is a causal property of x iff it’s possible that there is some event E such that x causes E in virtue of having P. Intentional causation is causation by ID properties.

physical reduction base that plays the causal role. Third, there must be a theory that shows how the physical realizer plays the causal role.

I doubt that ID properties satisfy any of these conditions, but I'll focus only on the second condition—the condition that says that there must be a physical realizer that plays the causal role that defines the property: Consider the property of being the payment of a debt. It is difficult even to think of a candidate to be a physical realizer in a physical reduction base of being payment of a debt.

In order for it to be possible for an event to be a payment of a debt, the practices of owning and borrowing must already be in place. So, the properties involved in those practices of owning and borrowing must be instantiated before a payment of a debt is even possible. Moreover, owning and borrowing are also ID properties. We have no idea what the base physical properties on which being a payment of a debt can supervene. Yet, if Kim is right, the causal efficacy of the payment of the debt resides in the physical realizer (whatever that is). So, when your payment of the debt causes an end to harrasing phone calls from your creditor, the causation involved is all going on at the microlevel. Kim's view would have us transform a causal connection that we all understand, and that we can predict—the causal connection between your paying your debt and putting an end to harrasing phone calls from your creditor—into a causal connection between totally unknown physical properties.⁹

Moreover, even if Kim's conditions for functionalization were met, ID properties (though obviously causal) would still violate his Causal Realization Principle. The Causal Realization Principle, you recall, is this: If an instance of S occurs by being realized by an instance of Q, then any cause of this instance of S must be a cause of this instance of Q (and of course any cause of this instance of Q is a cause of this instance of

⁹ An objector may be tempted to brush aside my argument that Kim's conditions cannot be met by ID properties, on the grounds that it is merely epistemological. The fact that we do not know how to carry out the reduction, as we are often reminded, does not imply that there is no reduction to be carried out. (Antony and Levine (1997)). To such an objector, I reply that if one advocates a particular strategy to meet a challenge, one should give some reason to think that the strategy can succeed. If we have no idea of what a reduction would look like, we are in no position to claim that it can be carried out in principle. Without the "merely epistemological," one has little grounds for confidence in the loftily metaphysical.

S). So, on Kim's view, if, say, Jones' payment of his debt is to have the effect of putting an end to harrasing phone calls from his creditor, the payment of the debt must bring about the physical realizer of the property of putting an end to harrasing phone calls. But the physical-realizer of the property of putting an end to harrasing phone calls must include properties involved in already-existing practices. So, there is that Jones can do today that is nomologically sufficient for putting an end to harrasing phone calls. Since similar arguments apply to other ID properties, I conclude that no ID properties satisfy Kim's Causal Realization Principle.

The reason that Kim cannot recognize nonmental intentional properties of the social sciences and everyday life as causally efficacious is that, on his view, a macroproperty is causally efficacious only if it is micro-based, and a property is micro-based only if it is supervenient on locally instantiated micro-properties. That is, the same object that instantiates the causally efficacious macroproperty must have parts that instantiate its supervenience base.¹⁰ But if nonmental intentional properties—like paying a debt—supervene on anything, they do not supervene on locally instantiated properties. Your paying a debt does not supervene on physical properties of parts of your body. However, your paying a debt obviously has consequences.

So, if Kim were correct, I doubt that there would be any nonmental intentional causation whatever. What is at stake is all causation by objects' having properties whose instances depend on there being things with propositional attitudes—e.g., being written in German, being married, being an ambassador. If we are realists about causal explanation (as Kim and I both are), then without ID properties, we would have no causal explanations of, say, the success of a political candidate's election campaign—or of any other historical, political, economic, social, or legal phenomenon. So, Kim may be right that the problem of mental causation does not generalize to all macroproperties; but it does generalize to a great class of macroproperties that we cannot do without.¹¹ In light

¹⁰ This follows from the definition of 'micro-based' property. Micro-based macroproperties supervene on micro-properties of parts of the object that instantiates the micro-based macroproperty. Kim, 1998, p. 84.

¹¹ Even some versions of nonreductive materialism leave us with no recognition of the causal efficacy of ID properties generally. Versions of nonreductive materialism that hold that instances of

of the overwhelming empirical evidence of the causal efficacy of ID properties, we have good reason to reject any theory that deems them epiphenomenal, or nonexistent.

Nonreductive Causation

I take it to be a condition of adequacy on any account of materialism that it allow that ID properties generally are causally efficacious. I want to propose a new version of nonreductive materialism—I'll call it the 'PC View', 'PC' for 'property-constitution'¹²—and to suggest that it refutes Kim's arguments against nonreductive mental causation. Moreover, it recognizes the causal efficacy of ID properties, of which propositional attitudes are a special case.

Let me set out my view in contrast to Kim's in three ways. First, I believe that there are a multiplicity of ontological levels—levels in reality. On Kim's view, levels must be understood as levels of description or levels of explanation, not as levels of reality.¹³ Kim defines levels mereologically: objects that have properties at one level of description are parts of objects that have properties at higher levels of description. On Kim's view, all that exists are fundamental physical entities and their properties and relations, and sums of fundamental physical entities and their properties and relations. (That's what makes him a reductive physicalist (leaving aside epiphenomenal qualia).

mental properties confer (or are) causal powers and are intrinsic to their bearers (Pereboom (2002), Clapp (2001), Shoemaker (2003) will not generalize to account for other ID properties like the property of being written in Dutch or the property of being a delegate—putative properties whose realizations may have nothing in common. If predicates like 'having a credit card' or 'being a felon' do not designate properties, then we have no idea of any causal explanations of ordinary phenomena like being able to buy things without cash or of losing certain rights. Many ordinary phenomena are ID phenomena whose causal explanations appeal to ID properties.

¹² Pereboom and Kornblith (1991), Pereboom (2002) and Clapp (2001) all use the term 'constitution', but my view differs significantly from each of theirs.

¹³ The difference between levels is seen as the difference between wholes and their parts, and—on Kim's view—a whole is identical to the sum of its parts. Entities "at any level higher than the lowest level must have a full decomposition into parts all of which belong to the lower levels." (Kim (2002), p. 15) Levels are just a matter of description in terms of wholes or of sums of parts. They have no ontological significance for Kim. Likewise, Kim construes higher-level properties as "properties of wholes [that] are fixed by the properties and relations that characterize their parts," (Kim (1998), p. 18). So, higher-level properties are had by entities that have "an exhaustive decomposition, without remainder, into entities belonging to the lower levels." (Kim 1998, p. 15)

Because of this mereological conception of levels and higher-level properties, ontologically speaking, Kim's levels all collapse into one, a microphysical level.

On my view, by contrast, reality is characterized by distinct ontological levels. Different kinds of material objects are on different ontological levels.¹⁴ For example, mountains are on a lower level than ID objects like credit cards or passports, and atoms are on a lower level still.¹⁵ Concrete material objects come in kinds: Every object is of some primary kind or other. (Baker (2000)). An object's primary-kind property determines the object's level and confers on the object causal powers that cannot be manifested at lower levels. But the object also has other causal powers at lower levels. For example, an ordinary woman has causal powers at a personal level (she can make her friends feel good), as well as at a subpersonal level (she can rearrange air molecules when she dives into the swimming pool.)¹⁶ Making one's friends feel good is not a micro-based property. So, an individual can have properties at many levels, whether the properties are micro-based or not.¹⁷

The second way in which I differ from Kim concerns his notion of realization. Kim's Realization Principles, as we have seen, are very strong—so strong that they doom nonmental intentional causation. I reject his conception of realization and replace it with the much weaker notion of property-constitution. The heart of my view—the PC View—is the idea of property-constitution: Property instances are constituted by other property instances at a lower level.¹⁸ A property's constituter on a given occasion may be a proper part of a supervenience base for the property, but the constituting instance does not by itself suffice for the property-instance that it constitutes. For example, being an extension

¹⁴ Although I agree with Kim that atoms and sums of atoms are on the same ontological level, I do not believe that material objects can be understood as sums of atoms.

¹⁵ There is only a partial ordering of levels of objects. See my *The Metaphysics of Everyday Life* (in preparation) for details.

¹⁶ Pace Kim (Kim (1998)), I take the voter to be the bearer of all the properties at the different levels. To put the point in terms of Baker (2000), an object's properties include all those that the object has nonderivatively or derivatively.

¹⁷ So, I reject Kim's mereological conception of levels, according to which all properties with a single bearer are on the same level.

¹⁸ I say 'property-constitution' for convenience. What is constituted are property instances, not properties themselves. Property-constitution is analogous to the idea that I developed in Baker (2000) for understanding material objects in terms of what I simply called 'constitution'.

of an arm out of a car window does not by itself suffice for there being a left-turn signal. Property-constitution is a much weaker notion than supervenience or nomological sufficiency: Whether or not one property-instance constitutes another depends on circumstances. For example, raising one's hand in certain circumstances constitutes voting; in other circumstances, raising one's hand constitutes a request to speak.

I call the circumstances in which an instance of F can constitute an instance of G 'G-favorable circumstances.' G-favorable circumstances are the milieu in which something can have the property of being a G. A siren in certain circumstances constitutes an all-clear signal. A hand motion in certain circumstances constitutes a salute. Here, then, is a schema for property-constitution:¹⁹

- (P-C) x's having F at t constitutes x's having G at t =_{df}
- (a) G is a higher-level property than F; &
 - (b) x has F at t and x has G at t; &
 - (c) x is in G-favorable circumstances at t; &
 - (d) It is necessary that: $\forall z[(z \text{ has } F \text{ at } t \ \& \ z \text{ is in } G\text{-favorable circumstances at } t) \rightarrow z \text{ has } G \text{ at } t]$; &
 - (e) It is possible that: x has F at t & x lacks G at t.²⁰

The potential constituters of an instance of G may have nothing in common, other than their suitability to constitute an instance of G in various circumstances.²¹ For example, a single instance of the property of voting may be constituted by an electronic signal, a mark on paper, a hole in paper, a raised hand, or something else.²² There is no general answer to the question of how much latitude there is among potential lower-level

¹⁹ The schema for constitution of properties differs from the one for constitution of particulars given in Baker (2000) and elsewhere. In the schema for constitution of particulars, F and G are x's and y's primary-kind properties, respectively; and x and y are guaranteed to be nonidentical. In the schema for constitution of property-instances, F and G are any properties; and they have the same bearer.

²⁰ x has F but lacks G at t if the F-instance is not in G-favorable circumstances. X's having the property of being a salt molecule is constituted by x's having the compound property of being a sodium atom and being a chlorine atom—but only in salt-favorable circumstances. If the properties of being a sodium atom and being a chlorine atom were instantiated in circumstances that prevented bonding, there would be no salt molecule.

²¹ This feature distinguishes my idea of property-constitution from ideas of constitution found in Pereboom (2002) and from Clapp (2001).

property-instances that may constitute a single vote. My only point is that there is some latitude: a constituted property-instance may have any of a variety of different kinds of constituters, and there may be no physical similarities among the potential constituters.²³

The third way in which my view differs from Kim's is that I reject his Causal Inheritance Principle and replace it with a principle of Independent Causal Efficacy. The causal powers of higher-level property-instances cannot be reduced to the causal powers of their constituters. The effect of a vote exceeds the effect of the constituting hand motion alone.

Some nonreductionists hold that a property-instance has independent causal efficacy if and only if it would have had its effect even if its constituter had been different.²⁴ I would add that the causal powers of the constituted properties are not determined by those of the constituter alone. So,

(IC) A property-instance that has an effect *e* has independent causal efficacy if and only if (i) it would have had its effect *e* even if its constituting property-instance had been different, and (ii) it confers causal powers that could not have been conferred by its constituting property-instance alone.

Any property whose instances have independent causal efficacy is a genuine causal property. My thesis, then, is this: ID properties generally (with mental properties as a

²² For a defense of this claim, see Pereboom and Kornblith (1991); See also Pereboom (2002). My view differs from Pereboom's in the latter article in several important ways. Most significantly, (i) Pereboom sets aside "any fundamentally relational causal powers." (ii) Pereboom takes the relation between levels to be realization, where a realizer is nomologically sufficient for the realized property. (iii) Pereboom takes the causal powers of the realized property to be determined by ("constituted by") those of the realizer. I differ on all scores: (i) Assuming that causal powers derive from properties in virtue of which something has an effect, I take almost all intentional causal powers to be relational. (ii) I take the relation between levels to be constitution, where a constituter is *not* nomologically sufficient for the constituted property, and (iii) I take the causal efficacy of ID properties *not* to be determined by their constituters.

²³ Actually, the definition (P-C) is too broad. It may be narrowed by defining 'direct property constitution' as follows: (DP-C) *x*'s having *F* at *t* directly constitutes *x*'s having *g* at *t* =_{df} (a) *x*'s having *F* at *t* constitutes *x*'s having *G* at *t*, & (b) There is no *H* such that *x*'s having *F* at *t* constitutes *x*'s having *H* at *t* and *x*'s having *H* at *t* constitutes *x*'s having *G* at *t*.

²⁴ Pereboom (2002) and Kornblith and Pereboom (1991) explain this point fully and persuasively.

special case) are causal properties because their instances have independent causal efficacy. Consider an example.

Let: V be Jones' voting against Smith at t.

P be Jones' hand's going up at t

V* be Smith's getting angry at Jones at t'

P* be Smith's neural state at t'.

C be circumstances that obtain at t in which a vote is taken by raising hands ("vote-favorable circumstances").

Suppose the V is constituted by P and that V* is constituted by P*. The causal powers conferred by Jones's voting against Smith are independent of the causal powers conferred by Jones's hand's going up. The causal powers conferred by Jones' hand's going up include the power to block someone's view. The causal powers conferred by Jones' voting against Smith include the power to anger Smith—no matter how the vote was cast. In short, the causal efficacy of mental property-instances (and of ID-property-instances generally) is independent of the causal efficacy of their constitutors. The PC View thus shows how mental properties make a causal contribution to what happens.

Saving Nonreductive Materialism

Any nonreductive materialist, I believe, will have to reject three of Kim's Principles: (a) The Physical-Realization Thesis, which guarantees that a putatively higher-level property can be instantiated only if it is reducible to lower-level properties; (b) The Causal-Realization Principle, which guarantees that no irreducible higher-level property can be causally efficacious (by requiring that the cause of any higher-level property must bring about its supervenience base); and (c) The Causal-Inheritance Principle, which guarantees that no higher-level property-instance confers on its bearer any new causal powers. These principles simply rule out ID properties altogether.

However, the PC View justifies rejection of each of these principles: if the PC View is correct, then each is false. The Physical-Realization Thesis and the Causal-

Realization Principle were both needed for Kim's Key Argument; the Causal-Inheritance Principle insures that higher-level properties have no independent causal efficacy. Hence, the PC View, if correct, renders Kim's argument unsound. (Conversely, of course, if Kim's argument is sound, then the three principles are true, and the PC View is incorrect.) My aim, however, is only to show that there is a coherent version of nonreductive materialism that vindicates intentional causation generally (mental and nonmental) and that justifies discarding these three principles. No nonreductionist of any stripe can accept the three principles, and the availability of the PC View provides the grounds for rejecting them.

Finally, consider the Causal-Closure Principle. The Causal-Closure principle says, roughly, that any physical event that has a cause at t has a complete physical cause at t .²⁵ Nothing I have said here violates that principle.²⁶ Here is a final example:

Suppose that Jane is going through the security gate at a U.S. airport, and she is instructed by a Federal agent to raise her arms, so that the agent can "wand" her. Jane wills²⁷ to raise her arms and she raises them. Suppose that her willing to raise her arms causes her to raise them. Call Jane's willing to raise her arms 'M' and her raising them 'M*'. Let MP be the microphysical constituter of M and let MP* be the microphysical constituter of M*. (Note that the relation between MP and M, on the one hand, and between MP* and M*, on the other hand, is not Kim's realization relation but my constitution relation.)

On the PC view, the microphysical constituter of Jane's willing to raise her arms (MP) is not a complete cause of the microphysical constituter of Jane's raising her arms (MP*). (To see that (MP) is not nomologically sufficient for (MP*), consider a world

²⁵ Kim (1993c), p. 280. This principle is important, says Kim, because to deny it "is to accept the Cartesian idea that some physical events have only nonphysical causes...."

²⁶ This principle is intended, among other things, to rule out the existence of a Creator God. Since I do not want to rule out the existence of a Creator God simply by this kind of stipulation, I would restrict the Causal-Closure Principle to the natural world. But the PC View is compatible with causal closure without restriction.

²⁷ I am using 'will' as an all-purpose term that covers choosing, deciding, forming an intention for the immediate future. 'Will' carries no metaphysical weight here.

with the same laws as ours in which Jane's brain is in a vat in the same microphysical state that it's in in the example. In that world, (MP) would not cause (MP*), because in that world Jane doesn't have arms to raise. Hence, (MP) is not nomologically sufficient for (MP*). But the fact that (MP) is not a complete cause of (MP*) is no problem for causal closure. The Causal-Closure principle requires only that MP* *have* a complete microphysical cause, not that MP *be* that complete cause of MP*. MP is only a proper part of a larger aggregate of microproperties that is nomologically sufficient for MP*.²⁸

There is no difficulty for the property-constitution view in saying: (i) Jane's willing to raise her arms causes her to raise her arms; (ii) Jane's willing to raise her arms is constituted by MP; (iii) Jane's raising her arms is constituted by MP*; but (iv) MP does not cause MP*. If the microphysical state of one sizable spatiotemporal region that ends at the time of Jane's willing caused the microphysical state of a slightly later sizable region that begins at the time of Jane's raising her arms, then the Causal-Closure Principle is honored.²⁹ So, although the PC view does not require MP to be causally sufficient for MP*, it nevertheless does not thereby violate the Causal-Closure Principle.³⁰

One last question about the PC View: What is the relation between constitution and supervenience? Although constitution is not itself a supervenience relation, constitution is compatible with global supervenience. A constituted property-instance may supervene on its subatomic constituters *together with* the microphysical supervenience base of all the circumstances in which the constituted property-instance occurs.³¹ So, there is no logical conflict between global supervenience and the PC View.

Conclusion

²⁸ cf. Noordhof (1999) and Segal and Sober (1991). I discovered these articles after I had written the paragraph to which this note is appended.

²⁹ There is much more to be said about the Causal Closure Principle. Kim holds that physicalism "need not be, and should not be, identified with micro-physicalism." In that case, if we disentangle the Causal Closure Principle from the thesis of mereological supervenience, my own nonreductive view satisfies the Causal Closure Principle. See Kim (1998), p. 117.

³⁰ We may still have a harmless kind of overdetermination. But note that the overdetermination is generated by the whole supervenience base, not by the constituter.

³¹ Constitution is contingent and highly context-dependent; supervenience is necessary and independent of context.

In this talk, I have done four things: (1) I set out in detail Kim's Key Argument against nonreductive mental causation and showed that it is valid. (2) I showed that, if Kim's Key Argument were sound, it would make nonmental intentional properties epiphenomenal; and this is good reason to think that the Key Argument is unsound. We have no idea how to do without nonmental intentional properties in causal explanation. (3) I presented a nonreductive model of causation—the PC View—that vindicates irreducible intentional causation with mental causation as a special case. The PC View justifies rejection of Kim's Key Argument. (4) I showed which of Kim's assumptions should be discarded and which may be retained by nonreductivists.

My conclusion about physicalism is this: Insofar as it is reductive, physicalism is false: it must rule out by fiat all kinds of ordinary causation that ground successful explanations and predictions in the mental and social sciences and in everyday life.³² Nonreductive materialism (whether it is properly called 'physicalism' or not) is the most promising approach for understanding the world as we encounter it—the world filled with ordinary things like people, plants, and animals, as well as artifacts and artworks. Only a nonreductive view offers a metaphysics that takes ordinary things and their interactions at face value and makes them intelligible. Only a nonreductive view respects reality as recognizable in the context of a broadly scientific outlook. To me, these virtues outweigh any claims made on behalf of physicalist purity.³³

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³² This conclusion is independent of questions of qualia.

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