

Cambridge University Press

978-1-107-07783-6 - Qualia and Mental Causation in a Physical World:

Themes from the Philosophy of Jaegwon Kim

Edited by Terence Horgan, Marcelo Sabatés, and David Sosa

Excerpt

[More information](#)

CHAPTER I

*Reality and reduction**What's really at stake in the causal exclusion debate**Louise M. Antony*

Jaegwon Kim's "causal exclusion" argument, well known to any reader of this volume, is generally discussed in the context of the mental causation debate: the debate about whether mental entities (or states or events)¹ can cause anything in virtue of their mental properties. In fact, the challenge posed by the argument is more fundamental. Kim is really calling into question the *reality* of mental properties by means of a challenge to the doctrine of multiple realizability (MR). I take a challenge to MR to be tantamount to a challenge to the reality of mental properties, because MR is – in my view – the only conception of mental properties that can do everything that a mental realist wants done.

MR purports to provide an account of how mental kinds can be *autonomous* from physical kinds and yet still be *nomic* – still figure in robust causal regularities. Strong (type) reduction sacrifices autonomy: mental properties, in this view, are no more distinct from neurophysiological properties than the property of *being water* is from the property of *being H₂O*.² At the other extreme, "Neumanian" forms of nonreductive materialism (the theories of, e.g., Donald Davidson, Tyler Burge, Lynne Baker, and Simon Blackburn) give up – cheerfully, it must be noted – nomicity, leaving it a mystery why a mentalistic taxonomy should afford us any predictive or explanatory power whatsoever.³ The thing that's so great about MR – its chief selling point – is that it blocks *ontological reduction* while preserving *reductive explanation*.⁴

But if Kim is correct, these twin goals cannot be jointly satisfied: autonomy can be secured only at the price of nomicity. According to MR, ontological reduction is blocked only if the properties that realize mental

¹ I mean to be neutral on the question of what kinds of things enter into causal relations.

² I will use italics to create names of properties. I'll speak indifferently of *being water* and *water*.

³ See, for exemplary statements, Davidson (1970b), Burge (1993), Baker (1993), and Blackburn (1991).

⁴ I mean "ontology" in the broad sense, where it refers to all the things you think exist, including, possibly, properties, and not in the narrow, Quinean sense, in which it is contrasted with "ideology."

Cambridge University Press

978-1-107-07783-6 - Qualia and Mental Causation in a Physical World:

Themes from the Philosophy of Jaegwon Kim

Edited by Terence Horgan, Marcelo Sabatés, and David Sosa

Excerpt

[More information](#)

properties form a causally heterogeneous set; that is, the realizer properties must differ with respect to the causal powers in virtue of which they effect the realization. Suppose M_1 is a mental property, stipulated to be multiply realized by distinct physical properties P_1 and P_2 . For P_1 and P_2 to count as *realizers, simpliciter*, they must each fit the causal/functional profile distinctive of M_1 – so that if M_1 's cause, for example, is M_2 's, then P_1 and P_2 must somehow each bring about the instantiation of some property that is itself a realizer of M_2 . But in order for P_1 and P_2 to count as *distinct* realizers – which is what prevents M_1 's being reductively identified with either one – they must do this bringing about in different ways. In that case, there are no distinctively *mental* causal powers that the two realizer properties share; there are only the different sets of causal powers associated with the different realizer properties.

Now, on Kim's view, a "property" with no distinctive causal powers is no property at all. If one accepts this principle, then the challenge to the reality of mental properties is quite direct: no uniquely mental causal powers, no mental properties. But even if one rejects this principle – and there are some reasons for doing so⁵ – the crisis is not averted. The problem is not just that there are no distinctively mental causal powers – the problem is *incoherence* between the claims made for the nomicity of MR properties and the assumption needed to secure their autonomy. The assumption that, for every MR property, its set of realizer properties is "wildly disjunctive"⁶ has been taken to be crucial to the demonstration that MR properties are irreducible. But how can a property that is nomologically – perhaps necessarily – coextensive with a "wildly disjunctive" property itself be nomic, a fit property for scientific taxonomies?

Perhaps, one might think, the way out of this particular dilemma is to assert the intentionality of lawfulness – this is the tack, after all, taken by Davidson when faced with a similar paradox.⁷ On this way of thinking, disjunctive *predicates* are unsuitable for *stating* laws; this unsuitability demonstrates the necessity, in some cases, of introducing new vocabulary, vocabulary that reveals lawful regularities that would otherwise remain unremarked. But this strategy simply sets the stage for a new challenge: how does our calling a heterodox collection by a new name turn it into a natural kind? The mere fact that we use a single term to refer to many different kinds of things hardly shows (*pace* Plato) that those things have some *objective* similarity to each other; it shows only that we have a

⁵ For some considerations against Alexander's Dictum (as Kim understands it), see Sabatés (2003).

⁶ Jerry Fodor's phrase, from Fodor (1974). ⁷ See Davidson (1970b).

Cambridge University Press

978-1-107-07783-6 - Qualia and Mental Causation in a Physical World:

Themes from the Philosophy of Jaegwon Kim

Edited by Terence Horgan, Marcelo Sabatés, and David Sosa

Excerpt

[More information](#)*Reality and reduction*

3

practice, suited to some purpose of ours, to *regard* them as the same. “Jade,” after all, is a single name that picks out, disjunctively, two distinct natural mineral kinds. Our adopting the *convention* of using this one name to refer indifferently to either jadeite or nephrite hardly calls into being a third new mineral kind, distinct from both of them.

What we have, then, is a pair of objections – I’ll call them the *incoherence* objection and the *conventionality* objection – that must be met whatever else is said about the causal powers of the mental.

These challenges to MR emerge from Kim’s response to a serious objection to the exclusion argument, the objection he calls the “generalization problem.” Many of Kim’s critics have charged that the exclusion argument shows too much if it shows anything at all – that it impugns the causal relevance of all *nonbasic* properties. If this is true, if it turns out that biological and chemical properties have no more causal potency than mental properties do, then epiphenomenality is surely nothing to worry about. Indeed, “epiphenomenality” in this sense would turn out to mean nothing more than “nonbasic.”

Kim’s reply, initially, rested entirely on a distinction between higher-*level* properties and higher-*order* properties.⁸ “Level” refers to the stage in the mereological hierarchy at which a property is instantiated; “order,” to the degree of abstractness in the property itself, relative to some other property or set of properties. A higher-level property is, then, one that applies to objects at a given level of mereological organization, but not to proper parts of those objects. A higher-order property, on the other hand, because it is abstracted from some set of lower-order properties, always applies to objects at the same mereological level as the objects that instantiate the relevant lower-order properties. Ascent up the mereological hierarchy, according to Kim, produces genuinely new causal powers, powers that are therefore not in competition with powers at some lower level:

H₂O molecules have causal powers that no oxygen or hydrogen atoms have. A neural assembly consisting of many thousands of neurons will have properties whose causal powers go beyond the causal powers of the properties of its constituent neurons, or subassemblies, and human beings have causal powers that none of our individual organs have. Clearly then *macroproperties can, and in general do, have their own causal powers, powers that go beyond the causal powers of their micro-constituents.* (Kim, 1998b, p. 85)⁹

But movement from order to order does not – indeed, *cannot* – bring new causal powers into existence. Movement to a higher-order property,

⁸ Kim (1995). ⁹ In what follows, page references all refer to this work.

Cambridge University Press

978-1-107-07783-6 - Qualia and Mental Causation in a Physical World:

Themes from the Philosophy of Jaegwon Kim

Edited by Terence Horgan, Marcelo Sabatés, and David Sosa

Excerpt

[More information](#)

according to Kim, is merely a matter of quantifying over lower-order properties, and such an operation cannot yield new properties,

By existential quantification over a given domain of properties, we do not literally bring into being a new set of *properties*. That would be sheer magic, especially if we adopt the plausible view that distinct properties must represent distinct causal powers. (p. 103)

Conclusion: the causal exclusion problem affects only higher-order properties, not higher-level properties. Insofar as the proprietary properties of chemistry, biology, and other special sciences concern objects at higher *levels* of mereological aggregation than do the objects of elementary physics, those properties are safe.¹⁰ As for the higher-order properties, the choice remains stark: reduction or elimination.¹¹

But this couldn't be the end of the matter. Generalization still threatens, for many of the proprietary properties of bona fide sciences, such as biology, are themselves higher-order, functional properties – think of *respiration*, or *being a cell*.¹² Accordingly, Kim has revised his line on higher-order properties: as long as such a property is *functionalizable*, it counts, ipso facto, as *reducible*. If this is so, then in the legitimate cases, there is no higher-order property residue – all the causal potency resides at the lower order, to be picked out, on any given occasion, by a higher-order *predicate*. And so Kim now allows that there may be no general problem about the causal relevance of mental properties per se; only those mental properties, if there are any, that resist functional analysis must be regarded as epiphenomenal:

If we are prepared to go for a functionalization of all mental properties, we will be embracing an all-encompassing reductionism about the mental, and this will solve the problem of mental causation. That's the good news. On a reductionist picture of this sort, however, the causal powers of mental properties turn out to be just those of their physical realizers, and there are no new causal powers brought into the world by mental properties. Many will consider that bad news. But the real bad news is that some mental properties, notably phenomenal properties of conscious experiences, seem to resist functionalization, and this means there is no way to account for their causal efficacy within a physicalist scheme. These properties are not able to overcome the supervenience argument. (pp. 118–19)

¹⁰ One wonders what Kim would say to this: are *sociological* properties immune from the exclusion argument? (Sociology, it should be noted, is the next level up from biology in the Putnam-Oppenheim hierarchy of sciences [Oppenheim and Putnam, 1958].) Would Kim take the position that individual human beings can cause nothing in virtue of thinking, but aggregated together they can elect presidents? I suppose that would explain the 2004 elections.

¹¹ Kim puts the matter this way, for example, in Kim (1997) and (1999).

¹² I'll follow this typographic convention: I'll use italics to indicate names of properties and all caps to indicate names of concepts. As usual, I'll enclose mentioned expressions in quotation marks.

Cambridge University Press

978-1-107-07783-6 - Qualia and Mental Causation in a Physical World:

Themes from the Philosophy of Jaegwon Kim

Edited by Terence Horgan, Marcelo Sabatés, and David Sosa

Excerpt

[More information](#)*Reality and reduction*

5

Kim, then, seems to have satisfied himself that the problem of mental causation has been solved and that it has been solved by his having found a palatable way of swallowing the “reduction” option for functionalizable mental properties. Accordingly, he has turned his attention, these days, to those pesky phenomenal properties.¹³

But I’m far from convinced that Kim has solved the problem he set himself. In a nutshell: the reductive strategy he advocates for functional properties does not result in any *ontological* economy – it does not permit us to *identify* functional properties with any of their lower-order realizer properties. And, in that case, the direct challenge to the reality of multiply realizable properties not only persists but also generalizes. But matters are far worse. Once we see *why* Kim’s functionalization strategy can’t provide an ontological reduction of higher-order to lower-order properties, we’ll also see that reduction is blocked for similar reasons in the case of *microbased* properties: these are not reducible, as Kim supposes they are, to the “microbasis” properties on which they supervene. In that case, the generalization problem returns with a vengeance. Now we’re threatened by a real apocalypse. If the exclusion argument generalizes, we lose causation at nonbasic levels, but if the challenge to MR generalizes, we lose *nonbasic levels themselves*.

I think I know how to save the (nonbasic) world. The strategy that I’ve advocated for vindicating multiply realizable properties works equally well to secure the ontological standing of all (genuine) nonbasic properties. The aim of this chapter is to show that this strategy is not only sufficient to vindicate MR but also necessary to vindicate science as we know it.

Let me begin with a close reading of Kim’s most recent formulation of the exclusion argument, with an eye toward seeing just how Kim thinks he has defused the generalization bomb. Chapter 2 of *Mind in a Physical World*, “The Many Problems of Mental Causation,” introduces the exclusion problem with the admonition that it “strikes at the very heart of physicalism” (p. 30). It arises, he says, for anyone who accepts two modest metaphysical commitments: the thesis that the mental *supervenes* on the physical, and the thesis that the mental is *realized* in the physical. Denial of either of these theses is tantamount, in Kim’s opinion, to the rejection of physicalism.

The notion of supervenience can be defined in many ways. Kim relies here on the following:

¹³ See Kim (2005). I happen to think that phenomenal properties are also functionalizable, but I’ll have nothing more to say about them in what follows.

Cambridge University Press

978-1-107-07783-6 - Qualia and Mental Causation in a Physical World:

Themes from the Philosophy of Jaegwon Kim

Edited by Terence Horgan, Marcelo Sabatés, and David Sosa

Excerpt

[More information](#)

Mental properties supervene on physical properties in the sense that if something instantiates any mental property M at t , there is a physical base property P such that the thing has P at t and [nomologically] necessarily anything with P at a time has M at that time. (p. 39)

There are two important things to note about supervenience so characterized: first, this supervenience relation holds between many other sets of property types than the two mentioned in the definition, as Kim recognizes. Second, supervenience so characterized is an *interorder*, and not an *interlevel*, relation. Some characterizations of supervenience specify the relation in terms of sets of properties without specifying, as does Kim's definition, that the objects that instantiate the properties in the basis set be the same objects as those that instantiate the properties in the supervening set. It is easy enough to define the relation in this more neutral way, and it's worth considering how the exclusion argument would look with the more liberal notion in place. This issue will become important in Kim's defense of the exclusion argument against the generalization objection.

So, here's the exclusion argument itself.¹⁴ Suppose that some M -instantiation causes an M^* -instantiation. By supervenience, we know that the M^* -instantiation has a physical supervenience base, P^* . But P^* -instantiation is nomologically sufficient for M^* -instantiation. It therefore appears that M and P^* each have a claim to being responsible for the instantiation of M^* on this occasion, and the two claims appear to be in "tension" with each other.¹⁵ The only plausible way to resolve this tension is to conclude that the M -instantiation causes the M^* -instantiation *by causing* a P^* -instantiation. But, again by supervenience, M has a supervenience base, P . By the causal closure of the physical, the P^* -instantiation must have a complete physical cause – presumably, the P -instantiation. But now P and M are in direct competition for being the cause of the P^* -instantiation.¹⁶

¹⁴ I follow here Kim's exposition in Kim (1998b, pp. 41–5).

¹⁵ I think there are a number of reasonable objections to the argument at this point. For one thing, one could question whether the way in which P^* – a supervenience base – has of "being responsible for the instantiation of M^* " is probably not *causal* responsibility, as Kim himself asserts later on: "in general, the relation between base properties [and] supervenient properties is not happily thought of as causal." In that case, it's unclear what "tension" there is between the claims of M and of P^* . But I don't wish to pursue this or any other of these objections here.

¹⁶ Kim says that this is true whether one understands causation in terms of nomological sufficiency or in terms of counterfactuals. Not so. The counterfactualist can disqualify P as a cause of P^* in the following way: if M is either multiply realizable or "multiply instantiable" (more on this notion later), then M has at least two supervenience bases, P and P' . In that case, the following could be true:

- i. if M had not been instantiated, then P^* would not have been instantiated without the following being true:

Cambridge University Press

978-1-107-07783-6 - Qualia and Mental Causation in a Physical World:

Themes from the Philosophy of Jaegwon Kim

Edited by Terence Horgan, Marcelo Sabatés, and David Sosa

Excerpt

[More information](#)*Reality and reduction*

7

So, either (a) M and P jointly cause P^* , or (b) the production of P^* is causally overdetermined, or (c) the candidate mental property M supervenes on the candidate physical property P . Option (a) can be rejected on the grounds that “it is difficult to see how M and P together can pack any more causal power than M alone or P alone” (p. 44), and (b) can be rejected because of its inherent implausibility, because it still allows the mental cause to be dispensed with in favor of the physical, and because it (apparently) conflicts with the principle of the causal closure of the physical. The only remaining option, then, is to conclude that M supervenes on P . But this is tantamount to saying that “the M -to- M^* and M -to- P^* causal relations are only apparent, arising out of a genuine causal process from P to P^* ” (p. 45). Mental causation is now revealed to be chimerical:

The situation is rather like a series of shadows cast by a moving car: there is no causal connection between the shadow of the car at one instant and its shadow an instant later, each being an effect of the moving car. The moving car represents a genuine causal process, but the series of shadows it casts, however regular and lawlike it may be, does not constitute a causal process. (p. 45)

ii. if P had not been instantiated, then P^* would not have been instantiated.

The reason this is possible is that there will be a world in which M is instantiated, but in which it is not instantiated in virtue of an instantiation of P' , rather than P , and this world could be the closest *non- P* world to the actual world, where M is instantiated in virtue of an instantiation of P . In this *non- P , P'* world, P^* is still instantiated.

Such a scenario is not implausible. Think of P and P' as slightly different neural net configurations, each of which is nomologically sufficient for the instantiation of the same mental property, say, having a sharp pain in the gut. It's reasonable to think that the world in which we have a P' configuration rather than a P configuration, and thus a world in which M is still instantiated, is a closer world than is one in which there is no M -instantiation at all.

I can think of two replies to this argument, but neither helps Kim. One involves a highly questionable criterion of event identity. The other involves a general objection to the kind of counterfactualist test of causal relevance proposed by LePore and Loewer as an alternative to nomic sufficiency tests rather than providing a certification, by reference to such a test, of the causal relevance of the mental. The first reply asserts that it's part of the identity conditions for *any particular* M -instantiation that it have the particular supervenience base that it has so that the *actual* M -instantiation that concerns us *could not* have occurred without being P -based. But surely the needed condition makes event identity too brittle – it entails, for example, that, had the arrow pierced Harold's other eye, the Battle of Hastings would not have occurred. The second reply depends on the assumption that the causal law relating M -instantiations to M^* -instantiations is *ceteris paribus*. If that's so, then there will be at least one supervenience base property, say, P'' , such that P'' -instantiations do not cause P^* -instantiations. In that case, the truth of (ii), the crucial counterfactual, will depend on which *non- P* world is closer, the P' world or the P'' world. If it's the latter, then (ii) will be true, and P will screen off M . If this reply is correct (see Antony, 1991, for discussion), then the counterfactualist cannot be sanguine about certifying the causal relevance of the mental. But none of this would help Kim support his claim that there is causal competition between the mental property and its supervenience base property, since the test names a clear winner whether or not my objection is sound.

Cambridge University Press

978-1-107-07783-6 - Qualia and Mental Causation in a Physical World:

Themes from the Philosophy of Jaegwon Kim

Edited by Terence Horgan, Marcelo Sabatés, and David Sosa

Excerpt

[More information](#)

After completing his exposition of the exclusion argument Kim immediately allows that the following is a “good question”: “Wouldn’t the same argument show that all properties that supervene on basic physical properties [like, for instance, biological and geological properties] are epiphenomenal, and that their causal efficacy is unintelligible?” This is the generalization objection, rearing its ugly head once more.

As I’ve explained, Kim initially responded to this problem strictly by appeal to the distinction between higher-level and higher-order properties. But by the time of *Mind in a Physical World* (MIPW), he wants to concede that interorder relations are ubiquitous throughout the sciences. So, while he will still contend that higher-level properties are immune from exclusion – a point I’ll challenge shortly – he must adopt a supplementary strategy to save at least some higher-order properties. The new strategy appeals crucially to reduction. Briefly, Kim will argue that *reduction eliminates causal competition* and that *functional properties are reducible*.

The heart of the issue here is this: with properties like geological and biological properties, we are much more willing, intuitively, to accept a reductionist picture in relation to basic physical properties. (pp. 46–7)

The implication is that there really is no contrast between the higher-order properties of geology and biology, on the one hand, and the higher-order properties of psychology, on the other. There is only a reluctance to accept the reducibility of the mental. This is a reluctance nursed by contemporary “nonreductive physicalists”:

Descartes’s difficulties arose from the duality of mental and material substances. Current mainstream physicalism, which calls itself “nonreductive physicalism,” runs into parallel difficulties on account of its commitment to the duality of psychological and physical properties – or its failure to make a reductionist commitment for psychological properties. (p. 46)

I find these remarks pretty puzzling. Note that the *only* kind of reduction that will serve to eliminate causal competition is one that leaves no ontological residue. No interlevel or interorder relation that preserves the numerical distinctness of the properties involved will do any good. But what that means is that the needed kind of reduction cannot preserve the *autonomy* of the properties it reduces; ergo, it cannot preserve the autonomy of biological or geological properties.

When we reduce *water* to H_2O , we do not vindicate the causal efficacy of water *as against* that of H_2O ; we say that the causal powers of the one property simply *are* the causal powers of the other property. Indeed,

Cambridge University Press

978-1-107-07783-6 - Qualia and Mental Causation in a Physical World:

Themes from the Philosophy of Jaegwon Kim

Edited by Terence Horgan, Marcelo Sabatés, and David Sosa

Excerpt

[More information](#)*Reality and reduction*

9

there is no “other” property – there is just the one, called by different names. Reduction of this sort certainly does not preserve the “autonomy” of *water*; nor does it vindicate an autonomous “science of the ordinary,” one that takes properties such as *water* and *salt* as proprietary. Yet the “reduction” Kim envisions for biological and geological properties must be one that does preserve this kind of autonomy for biological and geological properties; otherwise, the objector wins. If geology cannot have *uplift* and biology cannot have *cell*, there’s really not much point in worrying about *pain* or *belief*.

I sense a double standard at work. Why are we poor nonreductive physicalists singled out for opprobrium, accused of blocking conceptual progress in our understanding of the architecture of reality? We want nothing more for our proprietary properties than the defenders of biology and geology want for theirs. Why are they not also called “nonreductive physicalists”? Sauce for the goose is also delicious with gander. If biological and geological properties can somehow be “reduced” to basic physical properties in a way that leaves the sciences of biology and geology perfectly intact, then let’s do the same for psychological properties. Alternatively, if the dreaded “irreducibility” is nothing more than whatever kind of autonomy biological and geological properties enjoy relative to basic physical properties, then why worry about it in the psychological case? Biological and geological properties hardly reside “outside the physical domain”; so let psychological properties live there, too. The sort of “property dualism” at issue here posits only numerical distinctness between mental and nonmental properties, and not some metaphysically weightier difference in kind.

Kim tells us that “mind-body antireductionism” is the “tacit assumption that gets the supervenience argument going” and that “if the mental properties are viewed as reducible to physical properties in an appropriate way, we should expect to be able to disarm the [exclusion] argument” (p. 46). But why isn’t “mountain-body” or “animal-body” antireductionism equally problematic? I have a sneaking suspicion that Kim thinks that there are no such problems because *mountains and animals already are bodies*. That is, I have an inkling that Kim is starting off with the dualistic assumption that there is something queer about the mental, something that puts the onus on the mental realist to show how the psychological can “fit into” the physical. This queerness cannot be just a matter of the ontological architecture of the mental, for this is an architecture largely shared with other nonbasic domains.

Kim’s speculation that “we are much more willing” to countenance reductions of the biological or geological to more fundamental physical

Cambridge University Press

978-1-107-07783-6 - Qualia and Mental Causation in a Physical World:

Themes from the Philosophy of Jaegwon Kim

Edited by Terence Horgan, Marcelo Sabatés, and David Sosa

Excerpt

[More information](#)

10

LOUISE M. ANTONY

categories is revelatory of Kim's own antecedent reluctance to see psychology as just another nonbasic science. The very title of his book, *Mind in a Physical World*, suggests that the central issue for Kim is getting the mental to somehow *count as* physical – if that's accomplished, we're all done. Consider this characterization of the mind-body problem:

The question at bottom has always been this: if mental properties are physically irreducible and remain outside the physical domain, then, given that the physical domain is causally closed, how can they exercise causal powers, or enjoy any kind of causal relevance, in the physical domain? (pp. 58–9)

This way of putting things poisons the well. By tacitly enclosing biology and geology within the “physical domain,” this formulation obscures the fact that biological and geological properties generate exactly the same “question” as the psychological. And if biology and geology are not tacitly encompassed, I ask again: why not *Life in a Physical World* or *Mountains in a Physical World*?

I may be carping, but I'm not *just* carping. The serious point here is that Kim's talk of the “reducibility” of biological and geological properties is, or at least must be construed as, *loose*. It means something like “inside the boundaries of the physical.” He allows himself such loose talk because (if I may speculate) he can't but see the biological and the geological as *part of* the physical and thus as unproblematic. But the question really is *not* (as he puts it) whether mental properties are to “remain outside the physical domain”; the question, rather, is whether we must admit into our ontology mental properties *in addition to* their lower-level realizers. If there is an argument that shows that the mental can be dispensed with, then it will show, too, that other higher-order properties can be dispensed with as well. But if these properties cannot be dispensed with – if the reduction is loose and not ontologically economical – then we must deal with the conventionality and incoherence challenges for *all* higher-order properties. Winning the right to *call* such properties “physical” will hardly help.

With the distinction between “economical” and “loose” reduction in mind, let's turn to Kim's treatment of multiply realizable properties in chapter 4 of *MIPW*. We may suppose, with Kim, that the exclusion argument provides a strong reason to seek a reduction of mental properties to physical properties; we may also note – though Kim does not – that the reduction will afford a solution only if it is an economical one. The ostensible problem with multiply realizable mental properties is that their multiplicity of realizers apparently precludes strong type reductions: pain cannot be identified with the firing of C fibers if some creatures realize