

PROPERTY IDENTITIES AND MODAL ARGUMENTS

Derek Ball

University of St Andrews

© 2011, Derek Ball

www.philosophersimprint.org/011013/

I hope that some people see some connection between the two topics in the title [viz., naming and necessity]. If not, anyway, such connections will be developed in the course of these talks. Furthermore, because of the use of tools involving reference and necessity in analytic philosophy today, our views on these topics really have wide-ranging implications for other problems in philosophy that traditionally might be thought far-removed, like arguments over the mind-body problem or the so-called 'identity thesis'. Materialism, in this form, often now gets involved in very intricate ways in questions about what is necessary or contingent in identity of properties – questions like that. So, it is really very important to philosophers who may want to work in many domains to get clear about these concepts.

—Saul Kripke, *Naming and Necessity*, pp. 22–23 (first paragraph of lecture 1).

I am offered a trade: instead of a multiplicity of kinds of thing I can have a multiplicity of counterpart relations.

—David Lewis, "Counterparts of Persons and their Bodies", p. 53.

1. Introduction

Consider a physicalist about the human mind who defends a claim like (1):

(1) Pain = c-fiber firing.¹

1. I follow the custom of letting "c-fiber firing" stand in for whatever the physicalist thinks pain is. As will become clear, the discussion would be little changed if a functional state were substituted, since (i) functionalists are committed to property identities (on pain of property dualism); and (ii) there are modal arguments that target such identity claims. For example, the possibility of zombies would motivate the analog of premise (2) (below) with respect to functionalist identity claims. Block's China body system (Block 1980) explicitly targets functionalism in this way.

Kripke (1980, pp. 144-155) famously argued that “pain” and “c-fiber firing” are rigid designators and that identity statements involving rigid designators are necessary if true. He also argued that it is metaphysically possible that pain occur without c-fiber firing, and c-fiber firing without pain. Kripke thus tentatively endorsed the following sort of *modal argument*:²

1. If pain = c-fiber firing, then necessarily pain = c-fiber firing. (From the rigidity of “pain” and “c-fiber firing”.)
2. It is not the case that necessarily pain = c-fiber firing. (Because there might be disembodied spirits that have pain without c-fiber firing, and there might be zombies that have c-fiber firing without pain.)
3. Therefore, it is not the case that pain = c-fiber firing.

If the modal argument stands, the physicalist is refuted. Several large literatures focus on the putative grounds for premise (2): whether conceivability entails possibility (e.g., Balog (1999), Chalmers (2002)), the evidential status of ‘intuition’ (e.g., Bealer (2000)), whether the seeming coherence of the zombie hypothesis survives reflective scrutiny (e.g., Shoemaker (2003b), Tye (2006)), and so forth. The results seem inconclusive. But the physicalist has resources that have gone largely unappreciated. Premise (1), and the claim that the argument is valid, depend on controversial Kripkean views about the metaphysics of modality and the semantics of modal expressions. The physicalist can grant premise (2) and the modal epistemology from which it flows if she rejects the Kripkean metaphysics and semantics. This paper pursues one version of this strategy by examining the resources needed to resist the modal argument from a counterpart-theoretic perspective. In particular, I argue that the physicalist can defend her view by adopting

2. This style of argument is sometimes known as the *conceivability argument*, since the second premise can be motivated by claims about the conceivability of zombies or disembodied spirits.

counterpart theory for properties. The physicalist therefore has a powerful reason to be a counterpart theorist, and to extend her counterpart theory to modal claims involving properties.³

2. Lewis vs. the Modal Argument

It should not be surprising that a paper dealing with issues in counterpart theory should have roots in the work of David Lewis. And Lewis did respond to modal arguments by questioning Kripkean metaphysical and semantic views. But Kripke advanced *three* modal arguments: one targets *type* identity claims such as the claim that pain = c-fiber firing, another *token* identity claims such as the claim that this very pain = this very brain state, while the third targets the claim that persons are identical to their bodies. And Lewis developed *two* very different responses to modal arguments: he defended the type identity claim by denying that “pain” is a rigid designator, but he defended person-body identity by appealing to the flexibility of the counterpart relation. Let me begin by considering his response to the argument against type identity.

2.1 *The Rigidity of “Pain”*

In “Mad Pain and Martian Pain” (Lewis 1983c) and in “Reduction of Mind” (Lewis 1999c), Lewis maintained that “pain” is not a rigid designator. If this is correct, then the claim that pain = c-fiber firing is contingent: there are worlds in which “pain” and “c-fiber firing” designate distinct phenomena. Thus on this view the first premise of the modal argument (as presented above) is false.

3. Having said that I am considering issues in modal metaphysics, I hereby explicitly set aside the question of the nature of possible worlds. In particular, I will presuppose neither the truth nor the falsity of Lewis’s extreme modal realism. For non-Lewisian account of possible worlds that is friendly to counterpart theory, see Sider (2002).

But the claim that “pain” is non-rigid is not sufficient to answer every form of the modal argument. There are at least three further physicalist commitments that remain vulnerable. First, there are token identity statements: the physicalist claims not only that pain as a type = c-fiber firing, but also that this very pain = this very brain state. And Kripke explicitly advanced modal arguments targeting this sort of claim. But the idea that “this very pain” is non-rigid is implausible: demonstratives are generally held to be the best case for direct reference.⁴ Second, physicalism is committed to *de re* modal claims: for example, the claim of this very pain and this very brain state that necessarily, they are identical, and the claim of pain and c-fiber firing that they are identical. Here, rigidity is irrelevant, since we are quantifying in to the scope of “necessarily”.

Third, the physicalist is committed to identities among *properties* designated as such. For example, the physicalist must maintain that the property of being in pain = the property of having firing c-fibers. But it would be strange for Lewis to claim that “the property of being in pain” is non-rigid. Typically, phrases of the form “the property of being ϕ ” are rigid, even if ϕ itself is not. For example, “the inventor of bifocals” is non-rigid: it picks out Benjamin Franklin in the actual world, but other inventors in other worlds. Nonetheless, “the property of being the inventor of bifocals” seems to pick out the same property in every world: the property that Franklin actually has, and others might have had.

The claim that property designators like “the property of being in pain” and “the property of being the inventor of bifocals” are rigid can be bolstered by a further argument.⁵ Consider the property of being the first Postmaster General of the United States. This property is actually instantiated by (and only by) Benjamin Franklin. Franklin is also the only individual who actually instantiates the property of being

the inventor of bifocals. So the two properties are actually instantiated by and only by exactly the same individual. Nonetheless, it is generally agreed (in particular, by Lewis) that they are distinct properties.⁶ How do we know that they are distinct? Well, Franklin is both the first Postmaster General and the inventor of bifocals, but he might not have been. It could have been that Franklin instantiates the property of being the first Postmaster General, while someone else – say, Saul Kripke – instantiates the property of being the inventor of bifocals. That is, there is a world w in which Franklin alone instantiates the property of being the first Postmaster General, and Kripke alone instantiates the property of being the inventor of bifocals. So the property of being the inventor of bifocals is such that it is instantiated in w by Kripke, and the property of being the first Postmaster General is not. So the two properties must be distinct.

This line of argument would fail if “the property of being the first Postmaster General” or “the property of being the inventor of bifocals” were not rigid. For suppose that “the property of being the inventor of bifocals” were not rigid. In that case, the property instantiated by Kripke in w need not be the property actually instantiated by Franklin. Call the property instantiated by Kripke in w ‘ P_1 ’. The fact that Kripke (but not Franklin) instantiates P_1 at w is no more relevant to the identity in the actual world of the property of being the first Postmaster General and the property of being the inventor of bifocals than the fact that Kripke is the inventor of bifocals at w_1 is relevant to the identity in the actual world of the first Postmaster General and the inventor of bifocals. So if “the property of being the inventor of bifocals” or “the property of being the first Postmaster General” is non-rigid, the argument in the previous paragraph fails. But the standard view has it that we know that these two properties are distinct, and that the facts about worlds like w are decisive evidence for their distinctness. So given the standard view, “the property of being the first Postmaster General”

4. Some have held that complex demonstratives are disguised quantifier expressions; but the argument could be reformulated using simple “this” and “that”.

5. For more arguments to this conclusion, see Schnieder (2005).

6. I question this general agreement in section 3.1.1 below.

must be a rigid designator. Moreover, these considerations generalize to all designators of the form \lceil the property of being ϕ \rceil .

Thus even if “pain” is non-rigid, as Lewis claims, “the property of being in pain” is not. Thus modal arguments could be used to target the claim that the property of being in pain = the property of having firing c-fibers. So even if Lewis can avoid a dualism of states, he would need some other resource to avoid a dualism of properties.⁷

2.2 Counterparts of Persons

Thus Lewis’s first response to the modal argument cannot be counted a complete success. What of his response to the argument against mind-body identity? Here, Lewis appealed to counterpart theory. His view is that individuals are *world-bound*; each person and each body exists in only one possible world. *De re* modal claims are made true by *counterparts* of the *res* in question: “To say that something here in our actual world is such that it might have done so-and-so is not to say that there is a world in which that thing *itself* does so-and-so, but that there is a world in which a *counterpart* of that thing does so-and-so” (Lewis 1983b, p. 49).

Counterpart relations are relations of similarity. But there are many respects in which things can be similar. There are therefore many possible counterpart relations. Which counterpart relation is selected in a context is determined by contextual features of the conversation. Two such features will be relevant to our discussion. The first is the words used; certain words tend to make salient particular aspects of similarity, and thus particular counterpart relations (Lewis 1983b, pp. 51-52). The second relevant mechanism for selecting counterpart relations is *accommodation*: we tend to select counterpart relations that make our claims true:

7. I owe this line of argument (though not the detailed considerations of the previous two paragraphs) to George Bealer.

I suggest that those philosophers who preach that origins are essential are absolutely right – in the context of their own preaching. They make themselves right: their preaching constitutes a context in which *de re* modality is governed by a way of representing (as I think, by a counterpart relation) that requires match of origins. But if I ask how things would be if Saul Kripke had come from no sperm and egg but had been brought by a stork, that makes equally good sense. I create a context that makes my question make sense, and to do so it has to be a context that makes origins not be essential. (Lewis 1986a, p. 252)

How does this bear on the modal argument?⁸

1. If I = my body, then necessarily I = my body. (From the rigidity of “I” and “my body”.)
2. It is not the case that necessarily I = my body (because I could have been a disembodied spirit, or inhabited a different body).
3. Therefore, it is not the case that I = my body.

A first point is that in Lewis’s system, it is not straightforward to establish (1) by appeal to rigidity. In Kripke’s terminology, a rigid designator picks out the same object at all possible worlds. But this notion of rigidity is of little use in Lewis’s system, since according to Lewis, ordinary individuals exist only at a single possible world.⁹

8. Unless I say otherwise, I am throughout setting aside the possibility that a thing has more than one counterpart at a world (e.g., that I might have been twins.)

9. Lewis suggests an analog of rigidity: a term is *quasi-rigid* under a counterpart relation *R* if and only if at each world it picks out the counterparts according to *R* of its actual referent (if any such counterparts exist) (Lewis 1986a, p. 256). Using this terminology, the view to be described in this section is that, although some uses of “I” and “my body” are quasi-rigid under a common counterpart relation, other (perhaps more typical) uses of “I” and “my body” are quasi-rigid only under different counterpart relations. Given the former sort of use, premise (1) is true but premise (2) is false; given the latter sort of use, premise (2) is true but premise (1) is false.

What matters to the truth of claims like (1) on Lewis's view is whether the identity of myself and my body ensures that all of my counterparts (that is, counterparts of me *qua* person) are also counterparts of my body (that is, counterparts of me *qua* body). But Lewis argues that different counterpart relations can be active in different contexts, and in particular that some terms tend to make a particular counterpart relation active.

This has the result that two names for the same thing can tend to be evaluated with respect to two different counterpart relations. For example, the term "my body" will tend to make salient counterpart relations that emphasize bodily respects of similarity, such as size, shape, and color. But a term like "I" tends to make salient counterpart relations that emphasize *personal* respects of similarity, such as personality, intellect, and social role. It is no surprise that something could be like me in bodily respects while being unlike me in personal respects, and vice-versa. So it is not surprising that some counterparts of me with respect to the bodily counterpart relation are not counterparts of me with respect to the personal counterpart relation. But according to Lewis, in the appropriate context (2) just asserts that there are personal counterparts of me that are not bodily counterparts of me.

In a context where two counterpart relations (one preferred by use of "I", the other by "my body"), (2) is true. But this is not to say that there are no contexts in which a premise like (1) would be true. Perhaps we can generate one if we read aloud relevant passages from *Naming and Necessity*. If our Kripkean claims about the necessity of identity go unchallenged, a context is established in which there is only one counterpart relation relevant to evaluating claims about me. And in such a context, (1) is true: every counterpart of me (with respect to the only counterpart relation we are paying attention to) is a counterpart of me.

But in this context, (2) is false. When we argue so as to make (2) plausible, we shift the context by making two distinct counterpart relations salient. For example, we might ask how it would be if I had no body at all, but were a spirit in the ether. Just as we accommodate

Lewis's question about Kripke and the stork, we accommodate this question: we create a context in which the question makes sense. In this case, it must be a context in which some counterparts of me (*qua* person) are not counterparts of my body (*qua* body).

Thus Lewis can deny that the argument is sound: contexts in which the first premise is true are contexts in which the second premise is false, and vice-versa. The argument's plausibility is also explained: each premise is appealing when it is defended, because its defense makes it express something true. But when we hear each premise as true, we have illicitly shifted the context and the argument is invalid.

Slightly more formally, the situation is this. The following counterpart theoretic translation of the modal argument is valid:

1. $(DB = DB's\ body) \rightarrow \forall w \forall x \forall y ((w\ is\ a\ world \ \& \ x\ is\ in\ w \ \& \ y\ is\ in\ w \ \& \ x\ bears\ counterpart\ relation\ C\ to\ DB \ \& \ y\ bears\ counterpart\ relation\ C\ to\ DB's\ body) \rightarrow x = y)$
2. $\exists w \exists x \exists y ((w\ is\ a\ world \ \& \ x\ is\ in\ w \ \& \ y\ is\ in\ w \ \& \ x\ bears\ counterpart\ relation\ C\ to\ DB \ \& \ y\ bears\ counterpart\ relation\ C\ to\ DB's\ body \ \& \ x \neq y)$
3. Therefore, $DB \neq DB's\ body$.

Only one counterpart relation plays a role in this translation. Lewis's objection is that the proponent of the argument is not entitled to (2), since her defense of (2) will make other counterpart relations active. So such a defense will only establish something like (2')

- 2' $\exists w \exists x \exists y ((w\ is\ a\ world \ \& \ x\ is\ in\ w \ \& \ y\ is\ in\ w \ \& \ x\ bears\ counterpart\ relation\ C' \ to\ DB \ \& \ y\ bears\ counterpart\ relation\ C'' \ to\ DB's\ body \ \& \ x \neq y)$

But no argument from (1) and (2') validly leads to (3).

3. Counterparts and Properties

Lewis's first response to the modal argument failed. Can his counterpart theoretic response be extended to defend physicalist type identity claims?

There is a *prima facie* reason to think that it does not. Pain is a *type* of state; that is to say, a *property* of states.¹⁰ But Lewis held that properties (unlike, say, you and me) are trans-world individuals: properties are literally identical across worlds.¹¹ One might think that this means that there is no need for counterpart theory to handle modal claims about properties. In fact, I doubt this is so (and we will return to this point); but for the moment, let it stand. Even if the counterpart-theoretic machinery does not apply straightforwardly to claims about properties, the mechanisms Lewis appeals to predict failures of some modal arguments targeting property identities, since some names of properties include names of individuals.

Lewis maintains that properties are classes of actual and possible individuals. He claims that properties are the semantic values of abstract singular terms like “red”, “humility”, and “being a student”. Moreover, he claims that for “any predicate phrase whatever, however complicated”, there is a property that corresponds to it (Lewis 1999a, p. 18). In particular, Lewis endorses the following Property Comprehension Principle:

PCP For any predicate ϕ , there is a unique property P (the property of being ϕ) which is such that necessarily, for all x , x has P iff ϕx (Lewis 1999a, p. 18).

Now consider the predicate “is a student of Quine”. The PCP entails (2):

(2) There is a unique property P (the property of being a student of Quine) which is such that necessarily, for all x , x has P iff x is a student of Quine.

(2) contains a modal operator. On Lewis’s view, such operators are to be analyzed counterpart-theoretically. We are assuming for the sake of argument that we do not need the machinery of counterpart theory to handle claims about properties, so the left-hand side of our embedded biconditional will be unaffected. But the right-hand side contains the proper name “Quine”, and this will have to be ‘translated’ counterpart-theoretically. The result will be something like the following:

(3) There is a unique property P (the property of being a student of Quine), which is such that for any world w and individual x in w , (x has P iff there is a y such that y is in w and y is a counterpart of Quine and x is a student of y).

So far, so good. But as we noted earlier, there are a multiplicity of counterpart relations. In a Kripkean context, Quine-counterparts have to have come from (counterparts of) the very sperm and egg from which Quine actually arose. In more liberal contexts, some worlds in which (counterparts of) Mama and Papa Quine are blessed by the leavings of a stork might count as containing Quine counterparts. So in some contexts it is true to say “It might have been that all sentient beings are brought by storks, and Quine exists,” (where the modal takes scope over both conjuncts). In other contexts, we could not truly so speak.

So the counterpart relation that plays a role in (3) can vary from context to context. This means that the set of actual and possible individuals who can truly be said to “have the property of being a student of Quine” will vary from context to context. For example, in a Kripkean context no one who is the student of a being brought by a stork will count; in a more liberal context, it might be true to say of a student whose Quinish teacher was stork-brought, “She has the property of being a student of Quine”.

10. Some metaphysicians might hold that types are not properties. The discussion to follow should be adaptable to such a view.

11. An anonymous referee points out that the term “trans-world individual” is often used to describe individuals that are a shared part of more than one world. Of course this is not the sense in which properties are trans-world on Lewis’s view. Properties are not a part of any world; instead, they are instantiated in more than world. Likewise, when I later speak of “world-bound” properties, this is not meant to suggest that properties are parts of a single world, but that any given property is instantiated only in one world.

This mechanism already generates a phenomenon much like that Lewis described in “Counterparts of Persons and their Bodies”. For example, suppose that “Van” is another name for Quine, but suppose that in some contexts “Van” and “Quine” make salient different counterpart relations, C_V and C_Q . Applying the PCP in each case:

- (4) There is a unique property P (the property of being a student of Quine), which is such that for any world w and individual x in w , (x has P iff there is a y such that y is in w and y bears C_Q to Quine and x is a student of y).
- (5) There is a unique property Q (the property of being a student of Van), which is such that for any world w and individual x in w , (x has Q iff there is a y such that y is in w and y bears C_V to Quine and x is a student of y).

Now some possible beings will bear C_V but not C_Q to Quine, and vice-versa. So in the context where “Quine” and “Van” make salient different counterpart relations, it will be true to say of some possible beings, “She has the property of being a student of Van”, but false to say, “She has the property of being a student of Quine.” But, given Lewis’s view of properties, this is sufficient to make it true to say, “The property of being a student of Van is not identical to the property of being a student of Quine.”

Suppose, on the other hand, that we are in a Kripkean context in which only one counterpart relation (C) is salient. Then the PCP will deliver:

- (6) There is a unique property P (the property of being a student of Quine), which is such that for any world w and individual x in w , (x has P iff there is a y such that y is in w and y bears C to Quine and x is a student of y).
- (7) There is a unique property Q (the property of being a student of Van), which is such that for any world w and individual x in w , (x has Q iff there is a y such that y is in w and y bears C to Quine and x is a student of y).

In this case, there is no possible being of whom it is true to say, “She has the property of being a student of Quine,” but false to say, “She has the property of being a student of Van,” and vice-versa. Given that properties are individuated by their actual and possible extensions, this entails that in such a context it is true to say, “The property of being a student of Quine is identical to the property of being a student of Van.”

Now suppose an ‘identity theorist’ utters (8):

- (8) The property of being a student of Quine is identical to the property of being a student of Van.

Such an utterance might express a truth. But a ‘property dualist’ might reply with (9):

- (9) The property of being a student of Quine is *not* identical to the property of being a student of Van.

And this, too, might express a truth, if the dualist succeeds in making two counterpart relations salient. (8) and (9), as uttered in the contexts described, are not in conflict. The phenomenon is exactly that which Lewis described in the modal argument against person-body identity. Given the PCP, it can be generated without explicit modal operators, since the counterfactual extensions of “property” phrases are determined in part by counterpart relations.

Thus the context-sensitivity of sentences attributing the property identities is predicted in certain cases by mechanisms the counterpart theorist already accepts. But how can this strategy be applied to the modal argument against physicalism in philosophy of mind? It is rather unclear that it can. We are assuming that “pain” and “c-fiber firing” pick out properties of states. The claim would have to be that at least one of these terms is context sensitive: it picks out different properties in different contexts. It is not clear what could motivate this view. Moreover, even if the view could somehow be defended, there would be contexts in which “the property of being in pain” picks out a different property than “the property of having firing c-fibers”. This

threatens to vindicate the property dualist.¹²

3.1 World-bound Properties

The strategy of the previous section works when it does because some terms that denote properties are built up out of ordinary names, to which counterpart theory applies. It does not translate neatly to simple terms that pick out properties, such as “pain”. How are we to handle modal claims involving such terms?

A first thought might be that since properties are trans-world individuals (or so, following Lewis, we have granted so far), we do not need to treat modal claims about properties counterpart-theoretically. But this thought is rendered problematic by the disuniform, arguably non-compositional treatment of modal claims that it would require. It would be inelegant and methodologically undesirable to give entirely different semantics for modal claims involving properties and those involving other individuals.

We need counterparts of properties.¹³ But the opponent of the modal argument is not home yet. If properties are genuine trans-world individuals, then identity will always be a salient candidate for the counterpart relation. So the proponent of the modal argument for property dualism might claim that identity is the only eligible counterpart relation for properties. If this were correct, Lewis’s context-shifting

solution to the modal argument could not get off the ground, since the same counterpart relation would be active in every context.

Lewis called the view that there is only a single counterpart relation *constancy* (Lewis 1986a, §4.5). If constancy obtains, then Lewis’s response to the modal argument fails. This section and the next examine two ways of denying constancy. The first holds that properties are world bound; thus identity is not a candidate for the counterpart relation, and the argument discussed in the previous paragraph fails. The second holds that properties are not world bound, but denies that the counterpart relation is always identity.

3.1.1 Arguments for World-bound Properties

Consider the claim that properties are world-bound: redness, for example, exists only at this world, and is represented by counterparts at other worlds. The view should have some appeal for the class nominalist, since a traditional objection to class nominalism is that it must treat distinct properties (e.g. Quine’s *being a cordate* and *being a renate*) as identical, since they are instantiated by exactly the same actual individuals. Lewis can avoid this consequence by appealing to classes of possibilities, but it is not clear that all opponents of his extreme modal realism have this option. But by allowing a counterpart relation among properties, the class nominalist can note that although *being a cordate* and *being a renate* are actually identical, they might not have been. For many purposes, this will do as well as the claim that they are actually distinct (Guigon 2009, pp. 213-218).¹⁴

The situation is perhaps a bit more complicated with more realist accounts of properties. But in every case, properties are creatures of theory: they are postulated to fill a theoretical role. (“To deserve the

12. There may be a glimmer of hope. If the physicalist could argue that (1) “pain” and “c-fiber firing” are context sensitive in the indicated way, and (2) in the contexts in which “pain” and “c-fiber firing” pick out distinct properties, at least one of these properties is highly non-natural, then physicalism might be saved. (For discussion of why this is physicalistically acceptable, see fn. 30 below.) But I do not know how these claims might be defended.

13. Others have defended counterpart theory for properties. Mark Heller (1998) argues that some of the problems Lewis raises for ersatzist alternatives to his modal realism can be avoided by a theorist who endorses property counterparts. Cian Dorr (2005) motivates counterparts of propositions on semantic grounds; his arguments extend to properties. Ghislain Guigon (2009, pp. 213-218) defends counterpart of properties as a way of accommodating our judgments that co-extensive properties can be distinct. But none of these authors develops the practical applications and consequences of the view in the way I pursue in this paper.

14. World-bound properties will not serve every purpose to which philosophers have put properties. For example, they would not do as the objects of attitudes a la Lewis’s account of attitudes *de se* (Lewis 1983a). But any appearance of conflict is merely terminological. We can admit sets of possible individuals (Lewisian properties), and maintain that these are the objects of attitudes, while denying that they are properties in the sense relevant to the dispute between physicalists and dualists.

name of 'property' is to be suited to play the right theoretical role" (Lewis 1986a, p. 55).) It may be that world-bound individuals are best suited to play this role.

Why think that properties might be world bound? Lewis's main argument against trans-world individuals is the problem of accidental intrinsics. Suppose (what is plausible) that *being two meters tall* is an intrinsic property. I am two meters tall, but I might not have been. For the proponent of trans-world identity, this means that there is some world in which I am not two meters tall (that is, there is some world that strictly and literally has non-two-meter me (not merely a counterpart of me) as a part); I am two meters tall, but someone identical to me is not two meters tall. But this is a contradiction: I am and am not two meters tall. So either the property of being two meters tall is not intrinsic (and in general there are no accidental intrinsics), which is implausible, or individuals are world-bound.

Egan (2004) points out that a similar problem occurs for accidental higher-order predications. The property of being red is instantiated, but it might not have been. So there is some world at which the property of being red is not instantiated; it is instantiated, but something identical to it is not instantiated. But this is a contradiction: it is and is not instantiated.

One way to avoid this problem would be to claim that the property of being instantiated is in fact a relation (for example, a relation to worlds). Egan suggests that this strategy fails, since such a relation would not be had contingently: the property of being instantiated in w is a property that is had at all worlds if at all.

What alternatives remain?¹⁵ One attractive possibility is to take ordinary individuals as a model. On this view, properties are world-bound entities, whose modal features are given by counterpart the-

15. Considerations of space prevent me from discussing the full variety of possible responses to Egan's argument (and the Lewisian arguments that follow). In any case, I need not endorse the arguments wholeheartedly. My point is conditional: if you like the arguments as applied to individuals, you should like them as applied to properties.

ory.¹⁶ There are further reasons to find the view attractive. Lewis argues that counterpart theory is superior to trans-world identity because the counterpart relation need not be an equivalence relation. This helps the counterpart theorist solve puzzles that might be problematic for the identity theorist. But these puzzles also arise with respect to properties. For example:

First puzzle: Unlike identity, counterpart relations need not be 1-1. Lewis claims this as an advantage of his view because he could have been twins. But properties, too, could have 'been twins'. For example, there might have been two properties of being positively charged. We can imagine a world in which there are two distinct sets of entities, each of which bears suitable relations to negatively charged entities; but when members from each of the two sets come into contact, they react violently. It would be arbitrary to pick one as being the property of being positively charged in that world; both have equally good claim to the title.¹⁷ If properties are linked across worlds by identity, we have a problem: two distinct properties cannot be identical to one actual property. But if properties are linked by counterpart relations, all is well: two distinct properties can perfectly well be counterparts of a single property.

Second puzzle: Unlike identity, the counterpart relation is not transitive. Lewis sees this as an advantage of his view because it lets him avoid 'Chisholm's paradox' (Chisholm 1979) and related arguments (Lewis 1986a, pp. 245-6). Here is one version of the paradox: consider two ships, s_1 and s_2 , in world w_1 . s_1 and s_2 are made from distinct sets

16. Should we say the same about relations? There is some reason to think that certain relations must relate individuals at different worlds: the counterpart relation is a case in point. I doubt that this is much more than a terminological question; many views (such as the class nominalism discussed above) can admit both the world-bound and trans-world entities. The substantive question (for the purposes of evaluating physicalism) is: into which camp does pain fall?

17. It might be objected in a Kripkean vein that it is up to us to stipulate which is the property of being positively charged. In that case, I stipulate that both are.

of planks. With Kripke, we want to say that s_1 could not have been made from a completely distinct set of planks (say, the set that s_2 is made from); but surely it is possible for s_1 to have been built from a set containing one different plank. Imagine a world w_2 in which this is so. But from the point of view of w_2 , it is again possible that s_1 have been built from a set containing one different plank. And by considering a series of such worlds, we get to a world in which s_1 is built from the set of planks that s_2 is built from in w_1 . So our Kripkean essentialism is false.

Lewis wants (in some contexts) to be able to accept essentialism. He blocks the argument by denying the transitivity of the counterpart relation. s_1 has a counterpart in w_2 , the counterpart has a counterpart in w_3 , but it does not follow that s_1 has a counterpart in w_3 . So the fact that s_1 could have been slightly different, and the fact that its counterparts (and its counterparts' counterparts, etc.) could have been slightly different, do not entail that anything and everything is possible for s_1 .

Similar scenarios can be devised with respect to properties. For example, suppose that a certain property p conveys in w_1 a certain set of causal powers. Given different natural laws, this property could have conveyed slightly different causal powers.¹⁸ So consider a world w_2 in which this is so. From the point of view of w_2 , it is again possible that p could have conveyed a slightly different set of causal powers. But now we are off to the races: this line of reasoning would entail that p could have conveyed any powers at all. As before, we can block the argument

18. Some (e.g. Shoemaker (2003a)) have denied this on the grounds that properties are individuated by their causal powers and so have their causal powers essentially. This view would defeat the present argument. But there is a good reason for proponents of Shoemaker's view to accept property counterparts. A defender of property counterparts could admit much of Shoemaker's view, while avoiding its most problematic consequence: the metaphysical necessity of natural laws. For example, a defender of property counterparts could claim that everywhere, in every world, the property of being copper conveys the property of conducting electricity. It would not follow that necessarily, copper conducts electricity, since some counterparts of the property of being copper might convey different causal powers.

by holding that properties are world-bound, and that the counterpart relation that links them is not transitive.¹⁹

3.1.2 *Constancy*

So there are some attractions to the view that for some purposes properties are best treated as world-bound. How does this affect the modal argument? The key issue is constancy. The counterpart-theoretic response to the modal argument can succeed only if different counterpart relations can be made active in different contexts. But we can mimic Lewis's case against constancy in the case of counterparts of individuals for properties. Lewis's argument is as follows (Lewis 1986a, p 249). The Great Western Railroad could have absorbed another railroad as a part, but it actually did not.

Let GWR- be the Great Western as it actually was without the missing line. Let GWR be the Great Western. Let GWR+ be the sum of GWR- and the missing line. Here is GWR, in other words GWR-; they are identical. But the plural is a nonsense of grammar; 'they' are one thing, and *it* is self-identical. What might have happened to *it*? It is GWR; so it would have been greater,

19. An anonymous referee notes that there is alternative account of Chisholm's paradox, if we assume that there are coincident objects that have their modal properties essentially. For suppose that in the vicinity of ship s_1 there are s'_1 , composed of planks p_1 , p_2 , and p_3 , but possibly composed of p_2 , p_3 , and p_4 ; s'_2 , composed of p_1 , p_2 , and p_3 , but possibly composed of p_1 , p_3 , and p_5 , and so forth. And suppose that " s_1 " is indeterminate in reference, so that any of the s'_i s are acceptable precisifications of " s_1 ". Given a plausible story about accommodation, any utterance of (e.g.) " s_1 could have been made from planks p_2 , p_3 , and p_4 " will express a truth, but given that no acceptable precisification of " s_1 " could have been made from the planks s_2 is actually made from, no utterance of " s_1 could have been made from the planks s_2 actually is" will express a truth. Now Lewis rejects coincidence views for ordinary objects like ships (1986a, pp. 252-253). But an analogous view about properties might seem less objectionable. In fact, however, I think that such a view is problematic. How could there be properties that actually convey exactly the same causal powers but possibly convey different powers? What could ground these putative modal differences? Even if some grounding is found, the view would have strange consequences as regards causation. Which property would be causally efficacious in a given case? Is all causation massively overdetermined?

in fact it would have been identical to GWR+. It is GWR-; so it would have been only a part of GWR, not the whole, and hence not identical to GWR, which would instead have been identical to GWR+. Most certainly it, that is GWR-, would not have been identical to GWR+. We contradict ourselves about what would have become of this one thing which we can refer to in two ways: as GWR or as GWR-. (Lewis 1986a, p 249)

What Lewis describes is the material for a modal argument to the effect that GWR is not identical to GWR-. In combination with the (as Lewis thinks) evident fact that the two are in fact identical, we have a contradiction. One possible response to the argument would be to hold that "GWR" is not a rigid designator. After all, in the actual world GWR = GWR-. But it might have been the case that GWR = GWR+. An intuitive test for rigidity is as follows: N is rigid iff $\lceil N$ might not have been $N \rceil$, or $\lceil N$ might not have been what it in fact is \rceil express truths (e.g. Kripke 1980, p. 48). Since GWR- could not have been GWR+, that is just to say that "GWR" designates different things in different worlds: GWR- here, GWR+ elsewhere. In other words, GWR might not have been what it in fact is (because GWR = GWR-, but might not have been); GWR might not have been GWR.

But Lewis rejects this maneuver. He argues that the puzzle can be regenerated in a way that blocks the solution. If no counterpart relation is particularly salient (or if two are equally salient), then we don't know what to say about the modal features of GWR/GWR-: "I ask you: think of this object we've been talking about under two names – now, what would have happened to *it* if the line had been absorbed? Now you're stuck [...] you have no unequivocally right answer" (Lewis 1986a, p. 250). The non-rigidity theorist claimed that the vacillation as to whether GWR/GWR- could have included the missing line is a result of the fact that "GWR" designates different objects in different worlds. But the same vacillation can be generated without using the term "GWR", and the non-rigidity theorist seems to have no account of this phenomenon.

The solution Lewis advocates is the same as in "Counterparts of Persons and their Bodies". Consider GWR/GWR-. Relative to the counterpart relation made salient by "GWR", it could have been identical to the GWR+. Relative to the counterpart relation made salient by "GWR-", it could not have been. So in the "GWR" context, an utterance of "It could have been the GWR+" is true; in the "GWR-" context an utterance of the same sentence is false. There is no contradiction, because the two utterances express different propositions because of the different counterpart relations involved.

I said that we could mimic Lewis's argument for the case of properties. Indeed, I think that the argument has in effect been mimicked in the dispute between Lewis and Kripke over the rigidity of "pain". Kripke famously argued that "pain" is rigid: "if something is a pain it is essentially so, and it seems absurd to suppose that pain could have been some phenomenon other than the one it is" (Kripke 1980, p. 148-9).

Lewis replied as follows:

Think of some occasion when you were in severe pain, unmistakable and unignorable. All will agree, except for some philosophers and faith healers, that there is a state that actually occupies the pain role (or near enough); that it is called 'pain'; and that you were in it on that occasion. For now, I assume nothing about the nature of this state, or about how it deserves its name. Now consider an unactualized situation in which some different state occupies the pain role in place of the actual occupant; and in which you were in that different state; and which is otherwise as much like the actual situation as possible. Can you distinguish the actual situation from this unactualized alternative? I say not, or not without laborious investigation. But if 'pain' is a rigid designator, then the alternative situation is one in which you were not in pain, so you could distinguish the two very easily. So 'pain' is not a rigid designator. (1999c, p. 304)

I take the argument here to be as follows: suppose that actually,

pain = c-fiber firing. It is possible that something other than c-fiber firing (say, d-fiber firing) plays the role of pain (including causing all of the beliefs, reactions, desires, etc., that pain actually causes.) Lewis claims that a world where d-fiber firing plays the pain role (and c-fiber firing does not) is indistinguishable from the actual world, except by empirical investigation. But a world in which you are not in pain is easily distinguishable from a world in which you are in pain. So it must be that a world in which d-fibers play the pain role is a world in which d-fiber firing = pain (and hence c-fiber firing \neq pain).

This line of thought bears obvious similarities to a defense of the second premise of the modal argument against the claim that pain = c-fiber firing. Lewis rebuts it by arguing that “pain” is not a rigid designator: “pain” designates c-fiber firing here, and d-fiber firing elsewhere. In other words, pain might not have been what it in fact is (i.e, it might have been d-fiber firing, even though it is in fact c-fiber firing); pain might not have been pain. So “pain” is not a rigid designator.

At this point it should be clear that there is another alternative: the denial of constancy. And Lewis’s argument against the non-rigidity solution in the case of “GWR” generalizes to this case as well. Suppose that pain = c-fiber firing, and think of that phenomenon, which we have been referring to by two names – now, what would have happened to *it* if d-fibers had played the pain role? If we have followed Lewis this far, we should be unsure what to say. But these are the grounds on which Lewis denied constancy in the case of “GWR” and “GWR-”. If that argument succeeds, we should also deny constancy for “pain” and “c-fiber firing”.²⁰

So we now have the materials to resist the modal argument against physicalism. To recap: *de re* modal claims, including those about prop-

erties, are true in virtue of the counterparts of the *res* in question. If properties are world-bound, then the counterpart relation is not identity. But then there is no reason to assume that modal claims about a given property are always evaluated with respect to the same counterpart relation. In particular, different names for the same thing can make different counterpart relations salient. So what makes a claim like “possibly, pain \neq c-fiber firing” true (in the contexts where it is) is the fact that pain/c-fiber firing has counterparts according to one counterpart relation that are not its counterparts according to another relation. But this tells not at all against the claim that pain = c-fiber firing, and not at all against the claim that according to any single counterpart relation, “necessarily, pain = c-fiber firing” is true.

3.2 *Trans-world Properties*

In the last section, we assumed that properties are world-bound, and combined this with the denial of constancy for the counterpart relation that binds properties at different worlds. But it is possible to uphold the traditional view that properties exist at multiple worlds while dropping the assumption of constancy. On this view, properties are trans-world individuals. But modal claims about a given property need not be evaluated by examining that very property at other worlds; instead, they are evaluated by looking at *counterparts* of that property (which may, but need not, be the property itself).

Let me explain further. Recall that for the counterpart theorist, ordinary individuals are world-bound. They are in one world only; thus their modal properties cannot be a result of what happens to them in other worlds – *nothing* happens to them in other worlds. Instead, what we look to is what happens to them *according to* other worlds; how other worlds *represent* them as being. And what happens to me according to another world is what happens to my counterparts in it. That is to say, it is not in virtue of worlds alone that modal claims about me are true; rather, it is in virtue of worlds in combination with counterpart relations.

20. Note that we need not deny constancy in every case. For example, an anonymous referee suggests that there may be no need for the flexibility of counterpart theory for fundamental physical properties like force or spin. If that is correct, it will be represented in our system by there being only one admissible counterpart relation associated with the word “force”. (In the system of the next section, according to which properties are trans-world individuals, this counterpart relation might be identity.)

On the view we are now considering, properties exist in multiple worlds. But this does not significantly change the situation as regards the nature of modal truth. Again, modal claims about a particular property need not be true in virtue of what happens to that property in other worlds, but rather in virtue of what happens to it *according to* other worlds – how they represent it as being. It is still not in virtue of worlds alone that modal claims about properties are true, but in virtue of worlds in combination with counterpart relations. And the relevant counterpart relation need not be identity.

How would this model affect the modal argument against physicalism? We are conceiving of properties as trans-world individuals, so if pain = c-fiber firing, then everything in every world that is in pain has firing c-fibers, and vice-versa. But this fact is not relevant (or at least not decisive) to the truth of “necessarily, pain = c-fiber firing”. That claim is true only if all of the counterparts of pain (designated as such) are counterparts of c-fiber firing (designated as such).

We can generate contexts in which this is so; for example, perhaps in some contexts, the only salient counterpart relation just is identity. In such contexts, the first premise of our original modal argument would be true. The situation changes when the second premise is defended. The defender of the second premise makes active a two counterpart relations. So she succeeds in generating a context in which “possibly, pain \neq c-fiber firing” is true. But this does not entail that pain \neq c-fiber firing; it only entails that pain/c-fiber firing has different counterparts according to different counterpart relations. The worlds that make an utterance of “possibly, pain \neq c-fiber firing” true are not worlds *in* which pain \neq c-fiber firing, since there are no such worlds; instead they are worlds *according to* which pain \neq c-fiber firing. So the physicalist can rest easy; the argument is invalid.

4. Humphrey and Modal Epistemology

But does this response really make sense? The defender of the second premise invites us to imagine various Cartesian scenarios: perhaps minds experiencing pain despite being disembodied, or zombie bod-

ies that lack pains despite being duplicates of our own bodies. What we imagine *seems* to be a being without c-fibers experiencing a sensation that feels just like our pains, or a being with c-fibers like ours experiencing no sensations at all. But a sensation that is just like our pains just *is* pain. (This is one upshot of Kripke’s famous discussion of modal error.) How could it then be claimed that it is not pain, but merely some counterpart of pain, that is instantiated in the occurrence of such a sensation? Similarly, a being who feels nothing at all certainly does not feel pain. How could it then be claimed that such a being does in fact instantiate pain (but that the relevant fact is that her pain is not a counterpart of ours)?

The objection bears a striking similarity to Kripke’s famous Humphrey objection (Kripke 1980, p. 45 n. 13). Just as Kripke claimed that Humphrey cares only whether *he* – he himself – might have won, and not whether someone else like him did win, the objector is claiming that we are imagining that *pain* – it itself – might not have been c-fiber firing. The object of our imagination is pain, and not some other state. The counterpart theorist should respond as follows. We are imagining what *might be* the case: the contents of our imaginings are governed by an implicit modal operator, and this modal operator is to be analyzed counterpart-theoretically.²¹ So our imaginings are governed by counterpart theory, in much the same way as our ordinary modal beliefs and desires. For example, suppose we are trying to decide whether it is metaphysically possible that Humphrey wins. We decide that it is, because we can imagine that Humphrey wins; that is, we can imagine (we think) a world in which Humphrey wins. But since Humphrey is world-bound, there is no such world. If the object of our imagining is anything at all, it is a world in which a *counterpart*

21. It is most natural to think of the imaginings in question as fundamentally propositional rather than objectual: we imagine *that* such-and-such is the case, rather than *a world in which* such-and-such is the case. But those who follow Yablo (1993, §X) and Chalmers (2002, pp. 150-151) in thinking that objectual modal imagination is fundamental can accommodate. They must simply suppose that the object of our modal imagination is a world *according to a counterpart relation* rather than a world *simpliciter*.

of Humphrey wins – a world *according to* which Humphrey wins. So the seeming character of worlds we imagine is little guide to which individuals are present in them; it is at best a guide to which individuals are present according to them.

Once we extend counterpart theory to properties, we should expect the same behavior. We are imagining that there might be a being who has pain without c-fiber firing, and we are right: there might be such a being. Don't suppose, however, that there is a world in which pain \neq c-fiber firing (where this claim is construed non-counterpart-theoretically)! Given counterpart theory, this simply does not follow. And there is no problem with modal epistemology. It is not that our imagination is *inaccurate*; nor is it that we are imagining something other than qualitative features, or qualitative features other than those we thought. It is just that the object of modal imagination of this sort is not the way a world is, but the way a counterpart relation *represents a world as being*. Given counterpart theory, this is only to be expected. Imagination remains a good guide to *possibility* construed counterpart-theoretically, poor though it may be as a guide to explicit statements about other worlds.

5. Resemblance and Counterparthood

So the physicalist can resist the modal argument on the basis of counterpart theory, and there are some attractions to the resulting view. But there is a *prima facie* problem. Counterpart relations are relations of similarity. But what makes for similarity among properties? The problem is especially threatening if we regard similarity as the sharing of (natural) properties; on the version of the view that opts for world-bound properties, there will be nothing to be shared, and even counterpart relations among ordinary objects will be threatened.

The counterpart theorist has many options. So far, we have generally taken for granted Lewis's class nominalism, according to which properties are classes of actual (and, on Lewis's version, possible) entities. A simple version of this view might take various respects of property similarity as primitive. Alternatively, a class nominalist could

try to explain similarity of the classes that are properties in terms of similarity of their members.²²

A more sophisticated strategy is developed in detail by Mark Heller (1998). Heller proposes that properties can be compared by examining their *roles* in their worlds, where roles consist in such features as being instantiated at various spatio-temporal points, and being bound in particular ways by natural laws. Specifically, Heller suggests that Ramsey sentences describing the distribution of natural properties across space-time can exhaustively specify possible worlds. (Indeed, Heller sees these sentences not as merely specifying possible worlds, but as acting as ersatz possible worlds.) For example, one world might be:

World W₁ $\exists P_1 \exists P_2 \dots (\langle 13, 69, 12, 233 \rangle$ instantiates P_1, P_3, P_5 ; and $\langle 1, 17, 234, 98 \rangle$ instantiates P_2, P_3, P_4 , etc.)

Lewis-style Humean supervenience entails that the laws of nature supervene on the distribution of perfectly natural properties across space-time. So, given Humean supervenience, Heller's Ramsey sentences will give us laws of nature.²³ Heller thus suggests that such Ramsey sentences can be used to specify a property's role in its world: "To describe a property P 's role completely, we say 'it is such that...', where the ellipsis is filled in with the rest of the description of the entire world: P is such that it has such-and-such a distribution among other properties P_1, P_2 , and so on, that have so-and-so distributions" (1998, p. 301). For example, suppose that P is the witness for P_1 in the *World W₁* example described above. Using the familiar λ -abstract notation, we can describe P 's role as follows:

22. There is reason to doubt that this strategy will work for the world-bound class nominalist (see Armstrong (1989, pp. 52-3)). But the Lewisian class nominalist has more options (see Lewis (1999a, p. 16)).

23. In fact, Heller would need to assume the necessity of Humean supervenience, which Lewis does not endorse (see Lewis (1986b, p. x)). If this is deemed problematic, we could explicitly specify the laws in the Ramsey sentence. I follow Heller in ignoring this complication.

- (10) P is such that it satisfies $\lambda P_1 \exists P_2 \dots$ ($\langle 13, 69, 12, 233 \rangle$ instantiates P_1, P_3, P_5 and $\langle 1, 17, 234, 98 \rangle$ instantiates P_2, P_3, P_4 , etc.)

It is easy to imagine properties in other worlds playing similar or different roles (i.e., having similar or different patterns of instantiation, and/or similar or different nomological roles). Moreover, it is easy to imagine trading off different respects of similarity with respect to role to produce different similarity rankings, and hence different counterpart relations, in the way needed to motivate the Lewisian response to the modal argument.

On Heller's view, the nature of properties can be captured by specifying their distribution. Many metaphysicians may feel that there is more to the nature of properties. Fortunately, our counterpart theory is compatible with many other views. For example, the proponent of Armstrong-style universals could combine counterpart theory with Armstrong's (e.g., 1989, pp. 102-107) partial identity account of similarity among properties. Armstrong claims that there are complex properties which have atomic universals as their parts.²⁴ Resemblance between these properties is a matter of partial identity (i.e., sharing parts). The counterpart theorist could adopt this theory if she supposes that atomic universals are trans-world individuals. Resemblance among non-atomic properties (which might or might not be world-bound) would consist in sharing of parts.²⁵ (A similar account could be based on a Shoemaker-style causal theory of properties, taking causal powers to be genuinely shared across worlds, and properties to be similar to the extent that they bestow similar sets of powers. See fn.

18 above for another reason that the proponent of the causal theory of properties should find counterpart theory attractive.)

Trope theorists, who deny that there are multiply instantiable universals but admit that there are particular properties, could also accept the sort of counterpart theory described in this paper.²⁶ In order to resist Kripke's modal argument against token identities (e.g., this very pain = this c-fiber firing), one would have to postulate counterparts of individual tropes. In order to resist Kripke's modal argument against type identities (on which we have been focusing), the trope theorist would have to postulate counterparts of whatever entities she takes types to be. On one plausible view (Williams 1953, p. 9), types like *pain* are sets of resembling tropes. Although it would be possible in principle for the modal realist to take pain to be a class of actual and merely possible tropes, this view is unmotivated. The Lewisian class nominalist is motivated to include merely possible entities in order to distinguish actually coextensive properties such as *being a renate* and *being a cordate* (though see section 3.1.1 above). But the trope theorist can maintain that (for example) my being a renate is a distinct trope from my being a cordate, and thus that the set of all of the *being a renate* tropes is distinct from the set of all of the *being a cordate* tropes.

Resemblance on this view is an unanalyzed primitive.²⁷ But tropes, like other particulars, can be similar and dissimilar to different degrees and in different respects. For example, a dark shade of blue might resemble a light shade of blue with respect to hue, and a dark shade of red with respect to brightness. On the trope theorist's view, this is not

24. On Armstrong's view, only the fundamental physical properties are atomic universals. I am assuming that the physicalist will not treat *pain* or *c-fiber firing* as fundamental physical properties, and hence will hold that pain/c-fiber firing is complex.

25. This sort of view would lead to the (possibly attractive) result that the identity relation is the only eligible counterpart relation for atomic universals (since atomic universals have only themselves as parts). See fn. 20 above for discussion.

26. See Schaffer (2001) for one example of a trope theorist who accepts counterpart theory.

27. Some trope theorists may wish to treat *exact* resemblance as the only unanalyzed primitive, and to analyze inexact resemblance in terms of exact resemblance, perhaps along the lines of Armstrong's proposal discussed above (e.g., two complex tropes inexactly resemble each other if and only if they have parts that exactly resemble each other; see Armstrong (1989, pp. 124-5)). I set this view aside, as for our purposes it does not differ interestingly from the Armstrong view applied to universals. In any case, many trope theorists deny that inexact resemblance should be analyzed; see Campbell (1990, pp. 81-85), and, for discussion, Armstrong (1989, p. 125).

a matter of the dark shade and the light shade sharing a higher-order hue property, any more than the resemblance of two particulars is a matter of sharing a universal. Different respects of similarity among tropes could generate different counterpart relations. And similarity among classes of tropes could be analyzed in terms of similarity of their members.²⁸

Moreover, there is an independent motivation for the trope theorist to be a counterpart theorist. The trope theorist claims that “red” picks out the set of red tropes. Wolterstorff (1973, pp. 176-81) and Loux (2006, p. 79) object that since sets have their members necessarily, the trope theorist is committed to the claim that red could not have different membership, and in particular that it could not have more or fewer members than it actually does. But this entails that there could not be more or fewer red things than there actually are.

Counterpart theory gives a way out. According to the counterpart theorist, *de re* modal claims about the set of all red tropes will involve different counterpart relations in different contexts. Thus for example, if I say, “Sets have their members necessarily, so red has its members necessarily,” this will tend to make salient a counterpart relation according to which all counterparts of red have the members red actually has. But if I say, “There might have been more red things, so red might have had more members,” this will tend to make salient a counterpart relation according to which some counterparts of red have more members than red actually has. As with the modal argument, both utterances can be true, and the appearance of conflict is mere appearance.

6. Physicalism

Let us suppose that the foregoing objections are answered, and thus that we have developed a system that can validate (in some contexts)

28. See Armstrong (1989, pp. 123-4) for how this analysis avoids the difficulties that plague the analogous project for the class nominalist.

the claim that necessarily, pain = c-fiber firing. There remains a serious question as to whether this system can be considered a version of physicalism. For it is widely agreed that if physicalism is true, then the facts about the mind must supervene on the physical facts as a matter of metaphysical necessity. Indeed, many have attempted to *define* physicalism in terms of such supervenience. But some supervenience doctrines stand in tension with the view I have described. Consider, for example, the following claim (from Kim (1998, p. 9)):

- (11) Necessarily, for any mental property M , if anything has M at time t , there exists a physical base (or subvenient) property P such that it has P at t , and necessarily anything that has P at a time has M at that time.

The view I have described predicts that in some contexts, (11) will be false. For consider a context in which mental terms and physical terms are responsive to different counterpart relations. In this context, (11) will be paraphrased as something like (12):

- (12) For any world w , for any mental property M , if anything has M at time t in w , there exists a physical base (or subvenient) property P such that it has P at t in w , and for any world w' anything that has a property that is a counterpart of P at w' according to counterpart relation C_1 at a time has a property that is a counterpart of M according to counterpart relation C_2 at w' at that time.

Since C_1 need not be identical to C_2 , there is no reason to expect (12) to be true. For example, suppose that c-fiber firing is the putative physical base for pain, and that “pain” and “c-fiber firing” are responsive to different counterpart relations. Then it is true to say, “Possibly, some things have the property of having firing c-fibers at t but lack the property of being in pain at t .” This guarantees that it will be false to say, “Necessarily, anything that has the property of having firing c-fibers at a time has the property of being in pain at that time,” and this guarantees that (11) will express a falsehood.

There are two ways to respond to this challenge. The first de-

depends on the assumption that properties are not world-bound. We can begin by noting that supervenience claims can be stated in two ways: using modal operators, or using explicit quantification over worlds. The counterpart-theoretic view cannot respect supervenience, if it is stated using modal operators. This is because we evaluate modal claims by ‘translating’ them into claims involving counterpart relations and quantification over worlds, and in some contexts, the counterpart-theoretic translations will be false. But some versions of the counterpart-theoretic view *can* respect supervenience, if it is stated in terms of explicit quantification over worlds. For example, Frank Jackson (1998, p. 12) has argued that physicalism is the doctrine that any minimal physical duplicate of our world is a duplicate *simpliciter* (where a minimal physical duplicate of our world is a world that duplicates all of the physical features of our world, and adds nothing to these.) This view involves no modal expressions; there is thus no need for counterpart-theoretic translation, and any context-sensitivity resulting from the counterpart relation is irrelevant. Moreover, on the assumption that mental properties are identical to physical properties, and given trans-world properties, Jackson’s physicalism is very plausibly true.²⁹ Similarly, given trans-world properties, (11) can be replaced by (13):

(13) Necessarily, for any mental property *M*, if anything has *M* at time *t*, there exists a physical base (or subvenient) property *P* such that it has *P* at *t*, and *in every world w* anything that has *P* at a time has *M* at that time.

(13) will not be translated as (12): since the second clause explicitly quantifies over worlds, there is no call for a counterpart-theoretic translation and the context-sensitivity of the counterpart relation is irrelevant.

29. In fact, world-bound properties will also vindicate Jackson’s physicalism, but only by trivializing it: since duplicating our world requires duplicating the properties instantiated in it, and since properties are *ex hypothesis* world-bound, there will be no duplicates of our world.

It might be thought that there is something unpalatable in treating supervenience in terms of quantification over worlds rather than modal operators. But from the point of view of counterpart theory, explicit quantification over worlds is a much more natural way to capture ontological claims such as physicalism. The counterpart theorist holds that modal claims are made true by two factors: the facts about worlds, and a counterpart relation. Now the ontologist is interested in what there is, and what there is at other worlds may be relevant to her inquiry. But it is hard to see why she should care about counterpart relations. In effect, modal claims see worlds through the lens of a counterpart relation; for the purposes of ontology, the lens introduces distortions that should be set aside.

A further objection might try to use a modal argument involving direct quantification over worlds against this account of physicalism, in something like the following way:

1. If physicalism is true, then in all worlds pain = c-fiber firing. (From the definition of physicalism.)
2. It is not the case that in all worlds pain = c-fiber firing. (Because in some worlds there are disembodied spirits that have pain without c-fiber firing, and in some worlds there are zombies that have c-fiber firing without pain.)
3. Therefore, it is not the case that pain = c-fiber firing.

The physicalist should deny that we have reason to believe the second premise. Recall my discussion of the Humphrey objection above: our modal imagination is fundamentally directed at counterpart-theoretic modality. It gives us reason to believe modal claims: in effect, claims about possible worlds seen through counterpart relations. It does not directly give us reason to believe claims about possible worlds.

I said that there were two ways to respond to the challenge that our counterpart-theoretic account cannot accommodate supervenience. The second response is to give up supervenience as a necessary condition on physicalism. The root idea of physicalism is *monism*: the idea that there is only one type of thing. Supervenience has been sug-

gested as a way to capture this idea. But as long as identity theory is still on the table, there is a simpler way. It is hard to see how a world in which every instantiated natural property is identical to a physical property could be physicalistically unacceptable.³⁰ If the physicalist can maintain that every instantiated natural property is identical to a physical property, then (I claim) physicalism is saved, even if supervenience fails.

The analogy here is again with Lewis's account of the person-body identity and the GWR-GWR-identity. Lewis wrote, "I am offered a trade: instead of a multiplicity of kinds of thing I can have a multiplicity of counterpart relations" (1983b, p. 53). The physicalist, too, can avail herself of this trade. If physicalism is a matter of there being only one kind of thing (or one kind of property), then we can defend physicalism by postulating a multiplicity of counterpart relations.

7. Conclusion

There was a time when many philosophers held that mind-body identity claims were true only contingently, and thus could not be refuted by the mere possibility of their failure. Kripke showed that this view cannot be accepted by those who hold certain semantic commitments. These commitments are controversial, but the subsequent literature on the modal argument has failed thoroughly to consider alternatives. The metaphilosophical moral of Kripke's discussion – that "our views

30. Why the restriction to natural properties? Suppose we provisionally accept Lewis's class nominalism, according to which properties are sets of possibilities. Classes of possibilities are *abundant*: there is a class for any coherent predicate of any language, and perhaps some that cannot be captured linguistically (at least not in any finite way). Each actual individual is a member of indefinitely many such classes, and so, if these classes are properties, has indefinitely many such properties. Some of these classes will contain non-physical non-actual entities, so some of these properties will be non-physical. But this should not count against physicalism. What matters is that all the properties that enter into causal laws and the like are physical. I may be a member of sets that contain all sorts of merely possible spirits and ectoplasms; the physicalist is unscathed as long as all of these sets are sufficiently gruesome.

on [naming and necessity – that is, the metaphysics and semantics of modality] really have wide-ranging implications" (Kripke 1980, p. 22) – has been all but forgotten. As much recent work has shown, the modal argument raises interesting issues in modal epistemology. But the truth of physicalism does not turn only on these issues. Physicalists have options in modal metaphysics and semantics that deserve further exploration.³¹

References

- Armstrong, D. (1989). *Universals: An Opinionated Introduction*. Westview Press, Boulder, CO.
- Balog, K. (1999). Conceivability, possibility, and the mind-body problem. *Philosophical Review*, 108:497–528.
- Bealer, G. (2000). A theory of the a priori. *Pacific Philosophical Quarterly*, 81:1–30.
- Block, N. (1980). Troubles with functionalism. In Block, N., editor, *Readings in Philosophy of Psychology, Volume 1*, pages 268–306. Harvard University Press, Cambridge, MA.
- Campbell, K. (1990). *Abstract Particulars*. Basil Blackwell, Oxford.
- Chalmers, D. (2002). Does conceivability entail possibility? In Gendler, T. S. and Hawthorne, J., editors, *Conceivability and Possibility*, pages 145–200. Oxford University Press, New York.
- Chisholm, R. (1979). Identity through possible worlds: Some questions. In Loux, M., editor, *The Possible and the Actual: Readings in the Metaphysics of Modality*, pages 80–87. Cornell University Press, Ithaca, NY.
- Dorr, C. (2005). Propositions and counterpart theory. *Analysis*, 65:210–218.
31. I am indebted to comments from and conversations with George Bealer, Berit Brogaard, Maite Ezcurdia, Ghislain Guigon, Max Kölbel, Dilip Ninan, Bryan Pickel, Benjamin Schnieder, and Gonzalo Rodriguez-Pereyra. Special thanks are due to two anonymous referees for *Philosophers' Imprint* for extremely detailed and helpful feedback, and to Ralf Bader, whose comments led to very significant improvements throughout this paper.

- Egan, A. (2004). Second-order predication and the metaphysics of properties. *Australasian Journal of Philosophy*, 82:48–66.
- Guigon, G. (2009). *The Metaphysics of Resemblance*. PhD thesis, Université de Genève.
- Heller, M. (1998). Property counterparts in ersatz worlds. *Journal of Philosophy*, 95:293–316.
- Jackson, F. (1998). *From Metaphysics to Ethics: A Defense of Conceptual Analysis*. Oxford University Press, New York.
- Kim, J. (1998). *Mind in a Physical World*. The MIT Press, Cambridge, MA.
- Kripke, S. A. (1980). *Naming and Necessity*. Harvard University Press, Cambridge, MA.
- Lewis, D. (1983a). Attitudes de dicto and de se. In Lewis (1983d), pages 133–159.
- Lewis, D. (1983b). Counterparts of persons and their bodies. In Lewis (1983d), pages 47–54.
- Lewis, D. (1983c). Mad pain and martian pain. In Lewis (1983d), pages 122–132.
- Lewis, D. (1983d). *Philosophical Papers Volume I*. Oxford University Press, New York.
- Lewis, D. (1986a). *On the Plurality of Worlds*. Blackwell, New York.
- Lewis, D. (1986b). *Philosophical Papers Volume II*. Oxford University Press, New York.
- Lewis, D. (1999a). New work for a theory of universals. In Lewis (1999b), pages 8–55.
- Lewis, D. (1999b). *Papers in Metaphysics and Epistemology*. Cambridge University Press, New York.
- Lewis, D. (1999c). Reduction of mind. In Lewis (1999b), pages 291–324.
- Loux, M. J. (2006). *Metaphysics, third edition*. Routledge, London.
- Schaffer, J. (2001). The individuation of tropes. *Australasian Journal of Philosophy*, 79:247–257.
- Schnieder, B. (2005). Property designators, predicates, and rigidity. *Philosophical Studies*, 122:227–241.
- Shoemaker, S. (2003a). Causality and properties. In Shoemaker (2003c), pages 206–233.
- Shoemaker, S. (2003b). Functionalism and qualia. In Shoemaker (2003c), pages 184–205.
- Shoemaker, S. (2003c). *Identity, Cause, and Mind: Expanded Edition*. Oxford University Press, New York.
- Sider, T. (2002). The ersatz pluriverse. *Journal of Philosophy*, 99:279–315.
- Tye, M. (2006). Absent qualia and the mind-body problem. *The Philosophical Review*, 115:139–169.
- Williams, D. C. (1953). On the elements of being: I. *Review of Metaphysics*, 7:3–18.
- Wolterstorff, N. (1973). *On Universals*. University of Chicago Press, Chicago.
- Yablo, S. (1993). Is Conceivability a Guide to Possibility? *Philosophy and Phenomenological Research*, 53:1–42.