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## A "no causal rivalry" Solution to the Problem of Mental Causation

Stephen Yablo has recently argued for a novel solution to the mental causation problem: the mental is related to the physical as determinables are related to determinates; determinables are not causal rivals with their determinates; so the mental and the physical are not causal rivals. Despite its attractions the suggestion seems hard to accept. In this paper I develop the idea that mental properties and physical properties are not causal rivals. Start with property dualism, supervenience, multiple realizability, and the claim that no more than one supervenience base for a mental property can be had by a single instance of the mental property. Then a probabilistic account of causation will be unable to certify either mental properties or physical properties as causal factors for effect types. I suggest that this shows that we should not count mental properties as causal rivals with physical properties.

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I There is a familiar and depressing pattern to inquiries into mental causation. I believe these two things:

- (1) What we think and feel affects what happens.
- (2) All material things are made of littler things, except (perhaps) the very littlest things. The littlest things have a smallish set of ways they can interact with one another, some deterministic, some indeterministic. What happens depends on those littlest things and the ways they can interact.

These two thoughts seem inconsistent. How can my mental life matter if what makes a difference in the natural world is the littlest bits?

One way out of the inconsistency is physicalism: all particulars are physical particulars, and all properties are physical properties. While physicalism about particulars is an attractive view, physicalism about properties is hard to defend. In

this paper I will assume property dualism: each mental property is distinct from every physical property.

Another way out is substance dualism (mental things are distinct from physical things). But if the physical is causally closed (no physical event needs more than physical causes) then whatever is not part of the natural world can't affect the natural world, and so the first thought seems to have to go.

Substance monism and property dualism get at least this much: what we think and feel affects what happens. But it seems to make sense to ask what it is about mental things that makes a difference. What is it about this bread that makes it nourish? Surely not, that it came in a plastic bag, or that some people don't approve of it (since it's made from white flour). This bread nourishes because it is composed of carbohydrates and proteins and a few other things. What is it about mental things that affects what happens? Since they are physical, the answer would seem to have to be: their physical features.

Hence I take the problem to be this: assuming substance monism and property dualism, it seems to follow that mental events cannot cause other events in virtue of their mental properties. But that conclusion conflicts with a commonsense picture of the way that we think affects what happens.

This problem survives any number of recent attempts at solutions (Fodor, 1989; Heil, 1991; Horgan, 1989; Kim, 1983; Lepore, 1987; Lepore, 1989; McLaughlin, 1989). Kim's recent expression of pessimism about a solution he offered some time ago is telling (Kim, 1993, p.361):

But if  $P_j$  is a sufficient cause of  $P_2$ , what causal work is there for  $M_j$  to contribute in the causation of  $P_2$ ? Granted that  $M_j$  is supervenient on, and dependent on,  $P_j$ : so long as  $M_j$  remains a distinct property not identified with  $P_j$ , we must, it would seem, still contend with the two purported causes of a single event.

Given property dualism and this notion of "the causal work," we're stuck: there isn't room in our picture for more than one thing to cause another (except in unusual circumstances, and we are assuming that mental causation, if there is any, is absolutely normal in the human world).

2 Stephen Yablo argues that the reason we think there isn't room is that we mis-apply a certain standard when thinking about causes. Here's Yablo's (Yablo, 1992, pp.246-8) statement of the mental causation argument for properties:

- (1) If a property X is causally sufficient for a property Y, then no property X\* distinct from X is causally relevant to Y (*exclusion*).
- (2) For every physical property Y, some physical property X is causally sufficient for Y (*physical determinism*).
- (3) For every physical property X and mental property X\*, X is distinct from X\* (*dualism*).
- (4) So: for every physical property Y, no mental property X\* is causally relevant to Y (*epiphenomenalism*).

Yablo argues that we should deny *exclusion*. "The received view" on the mind/body relation is that the mental supervenes on the physical and the mental is multiply realized by the physical. Here are definitions of the two concepts:

- 2.1 strong supervenience  
(S) Necessarily, for every  $x$  and every mental property  $M$  of  $x$ ,  $x$  has some physical property  $P$  such that necessarily all  $P$ s are  $M$ s.
- 2.2 multiple realization  
(M) Necessarily, for every mental property  $M$ , and every physical property  $P$  which necessitates  $M$ , possibly something possesses  $M$  but not  $P$ .

Yablo points out that a suitably strong version of the conjunction of (S) and multiple realizability (M) is virtually the same as a suitably weak version of the claim that the mental/physical relation is a determinable/determinate relation. He then notes that determinables and determinates are not causal rivals. Hence we should deny *exclusion*.

There's much to be said for Yablo's idea, but for present purposes I want simply to note that the claim about determinables and determinates not being causal rivals is not obvious. Yablo describes Sophie the pigeon who has been trained to peck red triangles. It happens that the ones she's been trained on are scarlet, however. Surely we wouldn't, Yablo urges, want to conclude that the triangle's being red is *irrelevant*.

Well, why not? Here are two ways to resist Yablo's claim: first, what matters to Sophie is scarlet; she's indifferent to other reds, but her sibling will peck at any red triangle. Second, what really does matter is the fully determinate property which "does the causal work".

Yablo suggests that this standard (prefer the determinate to the determinable) will in the end backfire, so that no property is causally relevant. But that conclusion does not seem obvious.

So Yablo's suggestion has difficulties. There's the intuitive worry that the mental/physical relation, well, just isn't a determinable/determinate relation, since it's so different from the standard examples of the determinable/determinate relation. Second, it's not clear why determinables and determinates, especially in the case of the mental and the physical, should not be causal rivals. Third, it's not clear why applying the standard of *exclusion* must result in disaster.

3 Briefly, here's my proposal. I think I can show how the standard of *exclusion* does backfire, within the framework of a particular theory of causation, that is, Cartwright's probabilistic account (Cartwright, 1983). So I will suggest that we drop *exclusion* on that ground; hence the mental and the physical should not be thought of as causal rivals. To get this result I'll assume supervenience and multiple realizability (and a little bit more). My argument won't depend on relating the mental/physical relation to the determinable/determinate relation.

Here is the basic structure of my argument.

3.1 First, we need some fix on the notion of "doing the causal work". We could say this is simply the metaphysical notion of causal necessitation. But it is obscure what exactly that might mean. For instance, I don't really know what it would mean to say that the physical properties *do* and the mental properties *do not* "do the causal work". I propose a quasi-verificationist dodge. Let's give content to the notion of "doing the causal work" by appeal to theories of causation: Mill's Methods and their sophisticated progeny, for instance, theories of probabilistic causality. Such theories have the virtue that they explicitly address hard questions about precisely which kinds of regularities amount to causes, and hence for instance include strategies for handling common causes.

3.2 In all these accounts, causation depends on what screens off what from what. Take a red bomb. Set it off. It makes a crater. Take another bomb as like to the first as possible, except it's green. Set it off. It makes a crater. Take a third as like to the first as possible except it's red and has cottage cheese in place of the explosive. Set it off. No crater. Conclusion: The explosive screens off color from craters. Hence the explosive, together with some other things (the firing mechanism, certain "standing" conditions, the ground, etc.) is what is causally relevant to the crater.

3.3 If the physical properties really "do the causal work," then two things must be true: physical properties must screen off mental properties from effect properties; and mental properties must not screen off physical properties from effect properties.

3.4 That's the rub. Given supervenience, multiple realization and a little more, Cartwright's probabilistic theory of causation just falls apart. Physical properties don't pass the tests for being causes of effect properties, but they don't exactly fail them either. The same goes for mental properties. (Showing this is the hard part: that will be in sections 4, 5 and 6 below.)

3.5 But that conclusion by itself would mean that neither the mental nor the physical "does the causal work", if all the grip we have on the concept of "doing the causal work" is this kind of theory. That seems paradoxical.

3.6 So one suggestion would be this. When properties are related in the way I'm assuming mental properties are related to physical properties, then we ought not to compare them for causal relevance. In effect, Yablo's suggestion again, that we should deny *exclusion*, but from a different angle.

3.7 Mental properties, and physical properties, can be causal rivals with other properties. Just, not with each other. Thus we have a kind of layered view of properties: the dependency relation given by the conjunction of (S) and (M) divides the set of properties. The ontology of *things* isn't layered or leveled. The ontology of *properties* is, because of dependency relations that obtain among them.

4 That's the argument. Here are the details. We're assuming supervenience and multiple realization. The account of mental properties can be either internalistic or externalistic. If it is internalistic, then the supervenience base for the mental properties will be intrinsic properties of bodies. If it is externalistic then the supervenience base will be relational properties of bodies.

I will also assume *exclusivity* of supervenience bases for mental properties: if a thing has one of them, it does not have another. (If the onset of my headache has a certain human neural supervenience base, then it does not have the neural supervenience base for octopus pain, or Martian pain, or any other kind of pain.)

5 Probabilistic theories of causation are based on the idea that a cause should increase the probability of an effect. A theory of general causal claims like Cartwright's holds that if events of type A cause events of type B the probability of events of type B should be higher conditioned on events of type A. One central difficulty for any probabilistic account of causation is that such probabilistic rela-

tions may stem from common causes, rather than a causal relation between the events under consideration. Another difficulty is that one can construct probability increases at will given the right typing of events.

Cartwright's solution to these problems is to control for all causally relevant factors. Then a general causal claim 'A causes B' is true if and only if the probability of B events on A events is higher than the probability of B events in general, in all test situations homogeneous with respect to causally relevant factors for B. More precisely,

CC: C causes E iff  $\text{Prob}(E/C\&K_j) > \text{Prob}(E/K_j)$  for all state descriptions  $K_j$  over the set  $\{C_1\}$ , where  $\{C_1\}$  satisfies

- (i) If  $C_1$  is in  $\{C_1\}$  then  $C_1$  causes (suppresses) E
- (ii) C is not in  $\{C_1\}$
- (iii) for all D, if D causes (suppresses) E then either  $D = C$  or D is in  $\{C_1\}$
- (iv) If  $C_1$  is in  $\{C_1\}$  then it is not the case that C causes  $C_1$

CC is an impredicative condition on causation: the term "causes" is used on both sides of the condition. CC does not, therefore, define the notion of causal relevance; it rather imposes probabilistic conditions on causation. Cartwright holds, and I concur, that there is no purely probabilistic account of causation.

I'm now in a position to place a condition on the modal strength of supervenience and multiple realization.

Probabilistic theories are not modally innocent (Cartwright claimed that hers is, but that seems almost certainly incorrect). The probabilities have to be more than actual observed relative frequencies. They shouldn't change (much) if things were a little different from how things are.

I don't know how to specify the modal strength of CC. But whatever it is, for my strategy to work, the strength of the supervenience claims (S) and (M), and the exclusivity claim, need to be such as to guarantee certain probabilities. Let the mental property in which we are interested be  $M$ , and let the set  $\mathbf{P} = \{P_1 \dots P_n\}$  be the set of supervenience bases for  $M$ . Then

- ( $S_{\text{prob}}$ ) (i) For every  $x$  and every mental property  $M$ ,  $\text{prob}(x \text{ has one from } \mathbf{P} / x \text{ has } M) = 1$ .

- (ii) For every property  $P_j$  from  $\mathbf{P}$ , there is an  $M$  such that  $\text{prob}(M / P_j) = 1$ .

( $M_{\text{prob}}$ ) For every mental property  $M$  and every physical property  $P_j$  from  $\mathbf{P}$ ,  $\text{prob}(P_j / M) < 1$ .

( $\text{excl}/\text{slv}/\text{prob}$ ) For each pair of properties  $P_i, P_j$  from  $\mathbf{P}$ ,  $\text{prob}(P_i \& P_j) = 0$ .

6 Do the members of  $\mathbf{P}$  "do the causal work" rather than  $M$ ?

6.1 Is  $M$  a cause of  $E$ , given the background of causal factors for  $E$ ? (The state descriptions  $K_j$  will be over the set including members of  $\mathbf{P}$  and any other causal factors for  $E$ .) We need to check the probabilistic comparisons:

$\text{prob}(E/M\&K_j) ? \text{prob}(E/K_j)$

- (i) Partitions in which only causal factors for  $E$  other than the members of  $\mathbf{P}$  blow up, since the conditional probability on the left is undefined. (Since the conditional probability  $\text{prob}(Q/P)$  is defined to be  $\text{prob}(Q\&P)$  divided by  $\text{prob}(P)$ ).
- (ii) Partitions in which there is at most one from the members of  $\mathbf{P}$  show no probability increase, since given ( $S_{\text{prob}}$ )(ii) there is no difference between  $P_j$  and  $P_i\&M$ .

(iii) Finally, there are partitions that have more than one of the elements of  $\mathbf{P}$ . But these are impossible, so the conditional probabilities on both sides are undefined.

6.2 Do the physical properties satisfy CC? Since the question is, "which is doing the causal work?" we want to try each physical property against all its physical fellows, *and* the mental property, and the other causal factors for the effect. But again most of the comparisons blow up. The comparisons this time are of the form:

$\text{prob}(E/P_i\&K_j) ? \text{prob}(E/K_j)$

- (i) Consider first partitions which include  $M$ . Given ( $S_{\text{prob}}$ )(i) the instances of  $M$  have one from  $\mathbf{P}$ . Further limiting that group with  $P_j$  just picks out the  $M$ 's that are already  $P_j$ , and eliminates the  $M$ 's that are realized by another property from  $\mathbf{P}$  (this follows from  $\text{excl}/\text{slv}/\text{prob}$ ). I think the only way for there to be a probability change would be for  $P_j$ 's to be more (or less) likely to cause  $E$ 's when unaccompanied by other  $M$ 's which have different supervenience bases. Since that strikes me as an unusual situation, I conclude the general case is that there is no probability change.

(ii) Partitions in which one from **P** is tested against one or more of its fellows all yield undefined conditional probabilities.

(iii) Finally, we can check the physical property against the other causal factors for the effect. There, perhaps, the required probability increase is found.

6.3 In sum: the metaphysical connections we are assuming hold between *M* and **P** guarantee (a) that in all partitions *M* will fail CC's test for being a cause of *E*, but (b) that in most partitions the members of **P** will also fail CC's test for being a cause of *E*.

7 So which property is "doing the causal work"? I suggest that CC isn't suited to answer this question. CC works well as long as the various causal factors are independent, in the sense that it is up to the world what the probabilities will be. But (S) and (M) and *exclusivity* guarantee certain probabilities. That, in turn, forces certain failures of CC's probabilistic tests. We could conclude that this shows that neither the members of **P** nor *M* is a cause of *E*, or that the members of **P** are, since they fare slightly better. But given that most of the comparisons fail, I think it makes more sense to say that CC just has no grip on the question.

Yablo's *exclusion* is the claim that only one thing or property can "do the causal work". CC is part of one account of what "doing the causal work" amounts to. I've suggested that CC gives no answer to the question, "which property does the causal work" applied to the case of properties related by (S) and (M) and *exclusivity*. I think this is reason to deny *exclusion* for that case. When properties are related by (S) and (M) and *exclusivity*, then more than one can be a cause; they are not causal rivals.

Hence there is no ground for saying that one of the properties is "doing the work" and the other is. They both do the work. Or, if at this point one is queasy about the whole idea of "doing the work", neither is.

Finally, causal closure isn't threatened. Saying that both physical properties and mental properties are causes of effect types doesn't mean that there is something non-physical that is part of the complete cause of certain effects. There is a complete physical cause of every event. For some events, there is also a mental cause. The mental cause isn't a rival with the physical cause. So the presence of the mental cause is no reason to think that the physical cause isn't as complete as it needs to be for causal closure.

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