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*More on Making Mind Matter**

Ernest LePore and Barry Loewer
Rutgers University

During the heyday of neo-Wittgensteinian and Rylean philosophy of mind, the era of the little red books, it was said that propositional attitude explanations are not causal explanations and that beliefs, intendings, imaginings, and the like are not even candidates to be causes. Indeed, to treat mentalistic language as describing causes or causal processes is, it was said, to commit a logical error. We have come a long way since then. The work of Davidson, Armstrong, Putnam, and Fodor (among others) has reversed what was once orthodoxy and it is now widely agreed that propositional attitude attributions describe states and episodes which enter into causal relations. But, as a number of writers have recently observed, an F may cause a G even though its being an F is irrelevant to its causing a G.[1] For examples, Fred's taking a round pill may cause him to fall asleep but the shape of the pill is irrelevant (we may suppose) to its causing sleep. Donald's throwing a green stone with a certain force may cause the window to break. That his throwing is of a *green* stone is irrelevant while its being *with a certain force* is relevant to it causing the window's breaking. It seems that an event's properties are not all on an equal footing when it comes to causation.

How should we characterize "causal relevance"? We will not attempt

to answer this question yet but we will make a few preliminary points. First, c's possessing F may be relevant either to c's causing e or to c's causing a G. In the first case c's having F in some way yet to be described *grounds* c's causing e. In the second case c's having F grounds its causing a G. We think of the grounding relation as both metaphysical and explanatory. It is metaphysical since it involves some real relation between F and c and e (or G). It is explanatory since citing this property and the relation will, at least under certain circumstances, explain why c caused e (a G). We will say that a property P is *causally potent* just in case it is capable of grounding some causal relations. The idea is that it is the force with which the rock was thrown and not its being a green rock that grounds the causal relation between the throwing and the breaking. Of course, the throwing being of a green rock may be causally potent since it might ground some other causal relation.

Even without an explicit account of causal relevance a number of philosophers of mind have lately begun to worry that content properties may be as causally irrelevant to the effects of events which instantiate them as the pill's shape is to its dormative powers. This worry arises from the recognition that content properties possess certain features which apparently make it impossible to identify them with neurophysiological or other properties (e.g., syntactic) whose causal relevance is thought to be unproblematic. We will later examine some of the reasons why the nonidentity of content and neurophysiological properties should be thought to render the former causally impotent. For now we note that if content properties are causally irrelevant then we are faced with a new kind of epiphenomenalism; "content property epiphenomenalism." According to content property epiphenomenalism, while events which instantiate content properties may enter into causal relations their content properties themselves have no bearing on these causal relations.

One is likely to think that content property epiphenomenalism is contrary to common sense. It certainly seems that when Clyde's reason for going to the fridge is his thought that there is beer in the fridge the thought's possessing its content—that there is beer in the fridge—has something to do with the fact that it causes Clyde to go to the fridge. Furthermore, actions are not the only consequences of thoughts to which their content properties seem causally relevant. The content of Clyde's thought about beer not only makes a difference to his actions but also to the states of things which are not described intentionally; e.g., the locations of Clyde's body and of beers. And wondering whether there are infinitely many primes will, other things equal, initiate a sequence of thoughts dependent on the content of that wondering. Indeed, it would be surprising and dismaying to learn that discoveries about the nature of content establish that the content properties of Clyde's thoughts have no causal role to play.

In this paper we will be concerned with the question of what if any causal role content properties play. In part I we will discuss considerations which may lead one to worry that content properties are causally impotent. These worries arise from combining certain physicalistic commitments with the view that content properties are not reducible to physical properties. So in part I we will formulate a non-reductive physicalism and then canvass some reasons for thinking that content properties are not reducible to physical basic properties. In part II we will consider three responses which attempt to characterize a causal role and show that content properties play this role.

I

NON–REDUCTIVE PHYSICALISM The primary reason that Descartes' dualism of mental and physical substances and events seems to us to be so unsatisfactory is that it is difficult to square it with any reasonable account of mental causation. Not only is it difficult to understand how a non-extended mental substance can interact causally with something physical, but the advances of the sciences have made it increasingly plausible that the physical realm is causally closed. By this we mean that the occurrence of any physical event can be causally explained (to the extent that it is possible to explain it) by invoking only other physical events and laws. An interactive event dualism obviously violates the closed nature of the physical. In contrast to event dualism, the token identity theory, since it identifies mental events with physical events, is able to countenance mental events as causes without infringing on the closed character of physical causation. But token physicalism is a fairly tepid physicalism. It is compatible with there being two worlds which are exactly alike in their physical laws and facts and yet which differ in other respects. It is even compatible with emergent causation, the view that there are causal relations among events which are not determined by their physical properties. A stronger physicalism is embodied in the following three principles:

(i) *The comprehensiveness of physics:* There exists a fundamental theory (or theories) of basic physics such that every event instantiates a causal property of the theory-(ies). It follows that every event is a physical event.

(ii) *Global supervenience:* If two nomologically possible worlds are exactly alike with respect to fundamental physical facts (the facts expressible in terms of the vo-

cabularies of fundamental physical theories) then they are exactly alike with respect to all other facts.

(iii) *The priority and nomologicality of physical causation:* For any events c and e, c causes e iff there is a causal law of the fundamental theory of physics which subsumes c and e.

We will call the metaphysical view embodied in (i) through (iii) *non-reductive physicalism.*[2] This view requires considerable elaboration and defense but we will limit ourselves here to just a few remarks. First, we have to admit that we have no definition to offer of "fundamental physical theory." This will pose no problem for our discussion since there is a fairly good idea of which theories that apply to our world are likely candidates to be fundamental physical theories and which are not (e.g., quantum theory is, while price theory is not, a fundamental physical theory). A property is a basic physical property if it is expressed by a predicate of a fundamental physical theory and the basic physical facts are the facts expressed by statements of a fundamental physical theory. In (i) we are assuming that the fundamental physical theories are comprehensive in that they possess the resources for specifying every event (though, of course, we might not know how to redescribe a particular event, say, the assassination of the Archduke, in terms of the fundamental physical theory).

Global supervenience expresses the idea that all facts depend on physical facts. Two nomologically possible worlds which agree on physical facts also agree on mental facts, counterfactuals, and so forth. But this dependence is of a fairly weak sort. In particular, the global supervenience of all facts on physical facts does not imply that every property is or is reducible to a basic physical property or even that there are one way bridge laws of the form P→M connecting basic physical properties with other, e.g., content, properties. The reason for the latter is that bridge laws involve *explanatory* connections between properties and there is no guarantee that the global necessary connections entailed by global supervenience will be explanatory.

Condition (iii) is a special case of global supervenience since it implies that causal relations are determined by physical facts. It is stronger than global supervenience since it asserts that the basic physical properties of events c and e and the basic physical laws determine whether or not there is a causal relation between c and e. Thus, the fundamental causal laws and the distribution of causal physical properties at a world completely determine the causal relations which obtain at that world. This doesn't mean that there are no laws couched in terms of predicates which express non-basic properties. It is compatible with non-reductive physicalism that there exists such laws, even causal laws. Such laws may enjoy a

certain autonomy with respect to the laws of basic physics since it may be impossible to reduce them to fundamental physical laws. The status of such laws in *grounding* causal relations will later be discussed.

How does causal relevance fit into non-reductive physicalism? If c is P and e is P* and *Ps cause P*s* is a fundamental physical law then P is causally relevant to c's causing e. This seems correct since c's being P accounts for it causing a P*. Can properties other than P, and particularly properties which are not reducible to physical properties, also be causally relevant to c's causing e? We will return to this question after considering some of the reasons that have recently been offered to support the irreducibility of content properties.

THE IRREDUCIBILITY OF CONTENT PROPERTIES Recent discussions of content properties have focused on a number of features which these properties are claimed to possess and which have been thought to show either that they are not reducible to the physical properties which ground causal relations (i.e., to physical properties which occur in causal laws) or not reducible to physical properties at all. These features are multiple realizability, non-supervenience on neurophysiological properties, and normativity. We want to briefly review some of these features and explain why each may lead one to worry that content properties are epiphenomenal.

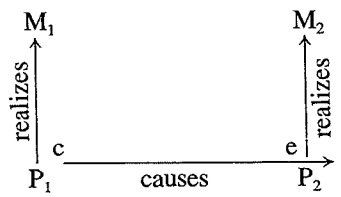
It is practically received wisdom among philosophers of mind that psychological properties (including content properties) are not identical to neurophysiological or other physical properties. The relationship between psychological and neurophysiological properties is that the latter *realize* the former. Furthermore, a single psychological property might (in the sense of conceptual possibility) be realized by a large number, perhaps infinitely many, of different physical properties and even by non-physical properties.[3]

Exactly what is it for one of an event's properties to *realize* another? The usual conception is that e's being P realizes e's being F iff e is P and e is F and there is a strong connection of some sort between P and F. We propose to understand this connection as a necessary connection which is *explanatory.* The existence of an explanatory connection between two properties is stronger than the claim that P→M is physically necessary since not every physically necessary connection is explanatory. For e's being P to explain its being F it may be necessary for there to be a *system* of connections between realized and realizing properties of property kinds to which P and F belong. And it may require that the central laws and principles governing the realized properties be explained by the connections between basic and non-basic properties and laws governing the basic properties. For example, systematic variations in the molecular structure of a substance give rise to systematic variations in its degree of solubility and

possession of a particular molecular structure explains the rate of dissolving and so forth. This supports the claim that a substance's molecular structure realizes its solubility.

If there are infinitely many physical (and perhaps non-physical) properties which can realize F then F will not be reducible to a basic physical property. Even if F can only be realized by finitely many basic physical properties it might not be reducible to a basic physical property since the disjunction of these properties might not itself be a basic physical property (i.e., occur in a fundamental physical law). We will understand "multiple realizability" as involving such irreducibility.

To see how the view that content properties are multiply realizable by neurophysiological (and other physical) properties can give rise to worries about the causal potency of content properties consider the following diagram:



In the diagram event c, a certain pattern of neuron firing, causes event e, a certain motion of the hand. P_1 is a neurophysiological property, P_2 is a certain movement-of-the-hand-property, M_1 is the property of thinking "that's my friend across the street" and M_2 is the property of waving. We suppose that P_1 realizes M_1 in c and P_2 realizes M_2 in e. Finally, suppose that c's being P_1 is sufficient for it to cause e and to cause e to be P_2.

Let us suppose that *P_1's cause P_2's* is a fundamental causal law. In that case P_1 is causally relevant to the causal transaction between c and e. The question is whether c's being M_1 is causally relevant as well. To be causally potent it would have to explain or ground the causal relation between c and e or account for why the event caused by c is M_2. The epiphenomenalist worry is that it does neither. In support of this the epiphenomenalist can cite that c's being P_1 is sufficient to account for its causing e and for e's being P_2 and, given the fact that e's having P_2 explains its possession of M_2, it is also sufficient to account for M_2. It seems that c's having M_1 is superfluous. It is not needed to ground the causal or explanatory relations in which c is involved since c's neurophysiological properties already do that. Notice that *multiple* realizability gives rise to the problem since if M_1 was realized only by P_1 then it would be possible to identify M_1 with P_1 and there would be no problem about the causal relevance of M_1 (over and above any problem about the causal relevance of P_1).

A second feature of content properties is that they fail to supervene on neurophysiological properties. This means that two individuals may be exactly alike with respect to their neurophysiological (or basic physical) properties and yet differ with respect to their content properties; e.g., one may believe that there is beer in the fridge and the other that there is twin-beer in the fridge. Supervenience failure is taken to be a consequence of Putnam's famous twin-earth thought experiments which presupposes a causal account of natural kind terms (we spare the reader another recitation of Putnam's stories) but it is also a consequence of any externalist account of content. It follows from non-supervenience not only that no neurophysiological property is identical to the psychological property of believing that there is beer in the fridge (as multiple realizability entails) but also that no neurophysiological property even necessitates the psychological property. This doesn't mean that *no* physical property realizes contentful psychological properties. There may be a more global physical property whose instantiation explains the possession of content properties.[4]

Failure to supervene on neurophysiological properties has been taken to disqualify a property from being causally potent for the following reason. We may suppose that there is a sufficient (or as close to being sufficient as is allowable by physical theory) causal explanation of a person's movement in terms of his prior neurophysiological state (and local environmental conditions in the vicinity of his body, e.g., whether he is in water, the gravitational field, etc.). If this is so then he would have moved exactly the same way even if he had a different belief as long as his neurophysiological properties remained the same (e.g., if his belief was about twin-water rather than water, etc.). The antecedent of this counterfactual is not vacuous since, due to failure of supervenience, there are possible worlds in which the neurophysiological state is the same but the content of the psychological state is different. The conclusion is that the content property *believing that there is water over there* is superfluous and so is not causally potent, at least with respect to a person's movements.

Jerry Fodor has given a related argument for a similar conclusion. He argues that content properties cannot affect what he calls "the causal power" of events which possess them. By a causal power of an event he means the event's ability to enter into causal relations with other events and states of affairs. The argument goes as follows:[5] A property P can affect x's causal powers only if there is a causal mechanism or fundamental causal law connecting x's having P with x's causal powers. But there is no causal mechanism or basic causal law that connects x's being a belief that there is water in the glass with its causal powers. The reason is that "you can't affect the causal powers of a person's mental states without affecting his physiology" (Fodor, p. 39). But, presumably, because of the failure of content properties to supervene on neurophysiological properties you can

affect the former without affecting the latter. So x's being a belief that p is not a property that affects causal powers. The reason that there is no such causal mechanism seems to be that the contents of x's beliefs are determined by causal relations between her environment and her brain or the deference conventions in her speech community and these can be changed while leaving her physiology the same.

The third feature opens the widest gap between content properties and physical properties. It has been argued by a number of philosophers that content properties are not physicalistically explicable. The underlying reason is that content properties are essentially normative properties. The normative aspects at issue arise from the possession of truth conditions. In virtue of possessing their truth conditions contentful states are *essentially* truth evaluable and essentially evaluable in terms of their logical and rationalizing connections to other thoughts and attitudes. That is, to be a state with content is to be a state which is assessable as true or false, as rational or irrational.[6] If this is correct then content properties are not even *realized* by physical properties in the sense of "realization" discussed above.

This kind of property dualism is compatible with psychological facts globally supervening on physical facts and even with the existence of necessary connections of the sort N(P→M) (where P is a physical property and M is a content property).[7] But if there are such necessary connections they are not sufficiently systematic and lawful to provide an explication of the content properties. In particular, the connections are incapable of accounting for the normative features of content properties.

We will not discuss whether or not content properties are physicalistically explicable but we do want to mention a reason for thinking that if they are not then they are causally impotent.[8] Suppose one held that for a nonbasic law, *Fs cause Gs,* to be a genuine causal law capable of grounding causal relations then there must be more basic explanations for why it holds. Without such explanations its truth would be merely coincidental and so it would not be a genuine law. The natural way of explaining why *Fs cause Gs* holds of c and e would be to locate properties P and P* of c and e which realize F and G. Then one would have an account of how and why this F causes a G. Of course, if there is multiple realizability then we would need different explanations in different cases. But if F is not realized by any physical property then there would not be an explanation of this sort for why *Fs cause Gs holds.* If we suppose that only a property which occurs in a genuine causal law is causally potent then it follows that content properties are not causally potent.

The above considerations all favor the view that content properties are not reducible to the physical properties which occur in fundamental physical causal laws. The extent and nature of the irreducibility varies among

the considerations. If F is multiply realizable (but supervenient on causal physical properties) and is realized by P there is a rather tight connection between F and P. Perhaps it is sufficiently tight to attribute causal efficacy to P. The normativity considerations, on the other hand, open up a wide gap between content properties and physical properties. For now we want to abstract from the various reasons for irreducibility and focus on an argument from irreducibility to the causal impotency of content properties:

(1) Content properties are not reducible to neurophysiological or other properties which occur in the causal laws of fundamental physical theories (since they are multiply realizable, nonsupervenient on neurophysiological properties, and normative).
(2) c's causal relations are determined by those of c's properties which occur in the causal laws of fundamental physical theories or properties which are reducible to them.
(3) So any property of c which does not occur in a fundamental causal law or is not reducible to such properties does not determine c's causal relations.
(4) A property of c is causally potent only if it determines some of c's causal relations.
(5) So content properties are causally impotent.

This argument propounds a paradox. The irreducibility of content properties, the priority of physical causation, and the causal potency of content properties are all plausible. But according to the argument they are incompatible. How should one respond to the paradox? The working assumptions of this paper—nonreductive physicalism—validate premises 1 and 2. Three is represented above as following from 2. In fact it doesn't. It is possible that even though an event's physical properties completely determine its causal relations some of its other properties, including its content properties, also determine (some of) its causal relations. That is, some of an event's causal relations may be *overdetermined.* If this is so then content properties are causally potent. A different response would be to reject 4. This would involve finding a construal of "casual potency" which assigns causal work to a property even though that property does not determine an event's causal relations. In part II we will examine three attempts to respond to this argument.

II

KIM'S SUPERVENIENT CAUSATION Jagewon Kim has proposed that causal relations among macro events, and specifically among mental

events, are dependent on causal relations among basic physical events.[9] He calls such dependent causal connections "epiphenomenal" or "supervenient." His use of the term "epiphenomenal" emphasizes the dependent nature of these causal relations while "supervenience" suggests the nature of the dependence. Kim construes an event as an ordered triple consisting of an object, a time, and a property ⟨x,t,P⟩; the event of x's possessing P at t. We have been construing events in Davidsonian fashion as more coarse-grained. On this account of events supervenient causation is best understood as relations between (coarse-grained) event-property pairs. The characterization becomes:

> ⟨c,F⟩ superveniently causes ⟨e,G⟩ iff there are basic properties P and P* such that N(P→F) and N(P→G) and c causes e in virtue of c's being P and e's being P*.

If we accept the nomological account of causation specified in (iii) then the final clause of the above definition can be replaced by "c and e are subsumable under the basic causal law 'Ps cause P*s.'"

For example, the event c's being the heating of a piece of metal superveniently causes e's being the metal's expanding because the molecular property which realizes the heating is causally related in the appropriate way to the molecular property which realizes the expanding.

Can supervenient causation be used to resolve our paradox? If so, we must understand it as providing a characterization of causal potency. If it is to provide a successful resolution it must satisfy the following conditions: (a) it is a causal relation sufficiently strong to vindicate our common sense views concerning content causation, (b) content properties must enter into supervenient causal relations, and (c) their doing so must be compatible with physicalism.

Before discussing whether or not content properties enter into supervenient causal relations we can see that non-basic properties which are multiply realizable can enter into such relations. While there must be a physical property P for which N(P→F) obtains F may not be reducible to physical properties either because it is multiply realizable or because the necessary relation is not an explanatory relation. So step 4 in our epiphenomenalist argument is false when causal potency is characterized in terms of supervenient causation. F may be superfluous to c's causal relations—these are already determined by c's physical properties—but still c's being F superveniently causes e's being G. Furthermore, ⟨c,F⟩ superveniently causes ⟨e,G⟩ is compatible with nonreductive physicalism. If c's being F superveniently causes e's being G then not only must F and G supervene on basic physical facts but the supervenient causal relation is completely dependent on the existence of a causal relation between the basic physical properties. So condition (c) is satisfied.

Is supervenient causation a sufficiently strong causal relation to underwrite our common sense views concerning content causation? Kim's strategy for supporting his claim that supervenient causation is causation enough to rebut epiphenomenalism is to argue that macro-properties like the heating of the metal which we ordinarily take to be causal properties participate in supervenient causal relations. If psychological properties also participate in supervenient causal relations then they are, at least in this respect, no worse off than macro-properties. Kim concludes "this seems sufficient to redeem the causal powers we ordinarily attribute to mental events" (p. 268 MWS). So, although supervenient causation does not accord psychological properties the same causal potency as basic physical properties it does accord them, Kim claims, the same causal status that is enjoyed by non-psychological macro-properties.

For Kim's reasoning to be compelling it must be that macro-properties like the heating of the metal possess their causal potency in virtue of being supervenient causes. But this is dubious. The supervenient causal relation is much too weak to ground a substantial notion of causal potency. Whatever it is that underlies our judgement that the instantiation of a macro-property (e.g., c's being heated) is causally potent cannot be supervenient causation. One way of seeing this has been pointed out by Brian McLaughlin.[10] If c's being F superveniently causes e's being G and F* and G* are any properties for which N(F→F*) and N(G→G*) then c's being F* superveniently causes e's being G*. For example, assuming that c's being the heating of a metal superveniently causes e's being its expanding then, since heating entails increasing energy, then c's being an increasing of energy in the metal superveniently causes e's being an expanding of the metal. But this doesn't seem right. Not any kind of energy increase in the metal causes it to expand. So it appears that the instantiation of a macro-property can superveniently cause the instantiation of another macro-property without there being a "real" causal relation between them.

What is present in the case of heating causing expanding that is not guaranteed by supervenient causation? There are two obvious suggestions. First, notice that for a piece of copper under usual circumstances the following counterfactuals will generally be true: If the piece of copper were heated it would expand; if the piece of copper were not heated it would not expand. But ⟨c,F⟩ may superveniently cause ⟨e,G⟩ even though neither of the corresponding counterfactuals is true. This point is telling against supervenient causation as an account of content causation since in expressing anti-epiphenomenalist intuitions it is natural to appeal to counterfactuals involving content properties; e.g., if he had not thought that the beer was in the fridge, he would not have gone there.

There is a second feature present in the heating-expanding example that may be absent from supervenient causal relations in general. It is a law

that heating a piece of metal causes it to expand. This law is, of course, not a fundamental law of physics and is best construed as a *ceteris paribus* law but it is a law. ⟨c,F⟩ may superveniently cause ⟨e,G⟩ even though there is not a law, even a *ceteris paribus* law, that Fs cause Gs. Indeed, it may even be a *ceteris paribus* law that Fs cause -Gs.

The above considerations show that Kim's defense of supervenient causation as providing a "substantial" notion of causal potency fails. The existence of supervenient causation relations involving content properties is not sufficient for rebutting epiphenomenalism. Furthermore, there are reasons for thinking that content properties cannot even enter into supervenient causation relations. Externalist considerations show that events c and c′ can be identical with respect to their neurophysiological and other causal properties though they differ with respect to their content properties. If this is so, then c's content properties do not supervene on its causal properties and so do not enter into supervenient causal relations.[11]

Our conclusion is that supervenient causation does not provide a solution to content property epiphenomenalism. It is not a sufficiently strong relation to allay epiphenomenalist fears and it seems that content properties do not enter into supervenient causal relations.

FODOR'S CAUSAL POWERS In his contribution to this volume Jerry Fodor defends the view that F is a *causally relevant* property just in case there is a causal law to the effect that Fs cause Gs.[12] The same view is developed by Brian McLaughlin in the course of defending Davidson's anomalous monism against the charge that it is committed to property epiphenomenalism.[13] We will understand these writers as attempting to characterize a notion of causal potency—we will call it "the nomological account"—which can be used to rebut content property epiphenomenalism. Fodor includes among laws to which his account applies laws which are not strict but which contain a *ceteris paribus* clause. This is important with respect to content properties since it is widely agreed that there are no strict causal laws whose antecedents are content properties. According to Fodor, a property F is causally relevant in a particular causal transaction, c causing e, just in case there is a causal law Fs cause Gs (*ceteris paribus*) which subsumes c and e whose *ceteris paribus* conditions (if there are any) are, in this instance, satisfied.

Fodor and McLaughlin's proposal can be thought of as attempting to resolve our paradox by rejecting step 3 in the paradoxical argument.[14] To rebut property epiphenomenalism Fodor needs to show that predicates expressing content properties occur in genuine causal laws, that such laws can determine causal relations and that their doing so is compatible with non-reductive physicalism. We will argue that his account doesn't succeed. First, we will give reasons to think that to the extent that the nomological

account affords a significant causal role to non-basic properties it compromises physicalism. Second, we will observe that Fodor himself has provided persuasive reasons for thinking that there are not genuine causal laws involving ordinary content properties.

Fodor argues that his account assigns to a property, even a non-basic property, F which occurs in the antecedent of a genuine causal law a significant causal role since F can affect the causal powers of events which possess it. That is, it can affect which causal relations c enters into. If c's being F is causally relevant to c's causing e then c's being F is, in the circumstances (i.e., circumstances in which the *ceteris paribus* conditions are satisfied), *sufficient* for c to cause e. Thus it seems that F has the "power" to determine the causal relations of events which instantiate it.

Fodor's proposal faces the following problem. Suppose that c and e are subsumed by the *ceteris paribus* law Fs cause Gs and the law's *ceteris paribus* conditions are satisfied. Will there also be a fundamental law of physics which subsumes these events? If Fodor's answer is "no" then the account is incompatible with reductive physicalism since there will be causal relations which do not supervene on basic physical properties and laws. If his answer is "yes" then the question arises of whether it is c's possessing the property F that determines its causal relations or its possessing some basic physical property P in virtue of which it is subsumed under a basic physical causal law that determines its causal relations. That is, is it F or P that gives c its causal powers? Presumably, Fodor's answer will be "both!" That is, c's being P and c's being F each have an equal claim to be responsible for c's causing e. But we wonder whether physicalism can permit a non-basic property and law to have the same status as basic properties and laws with respect to causation. It appears to us that non-reductive physicalism affords priority to basic physical properties over other properties when it comes to grounding causal relations. Our reason for saying this is that the ability of an F—a non-basic property—to cause a G is itself ultimately grounded in the physical properties of the events. The fact that Fs cause Gs is a causal law is a result of the basic causal laws and the way in which Fs and Gs supervene on physical facts. So the real locus of causal powers are the physical properties. F, so to speak, gets carried piggyback on physical properties and it is mere appearance that possessing F determines c's causal powers. The basic physical properties and laws determine both the causal relations among events and the non-basic causal laws. It is merely an appearance that the non-basic causal laws determine casual relations among events.

Fodor might grant that c's possessing the non-basic property F determines c to cause e (a G) given the law *Fs cause Gs ceteris paribus* only in a derived sense and that this derived sense is still sufficient to supply F with causal potency. But if F is to have even a derived status in determining

causal relations then it seems, as we suggested in part I, that there should be a physicalistic account of why the non-basic law holds in this case. If there is not such an account then we are faced with the causal relation being overdetermined in a way that hardly seems compatible with physicalism. Now Fodor seems to think that there are, in principle, physicalistic explanations of content properties. But if one thinks that there is no such account then Fodor's strategy doesn't solve the epiphenomenalist paradox.

In a way the previous discussion concerning Fodor's proposal for characterizing causal potency is moot since he has argued vigorously and persistently that ordinary content properties, which he calls *broad* content properties, do not, after all, affect causal powers.[15] By "broad content" Fodor means externalist content; that is, content which does not supervene on neurophysiology. As we have noted, he argues that due to this failure of supervenience, broad content properties do not individuate states in accordance with causal powers. He goes on to argue that since genuine sciences always do taxonomize with respect to causal powers, intentional psychology must be reformed if it is to be integrated into science. His well-known proposal is to construct "narrow content" properties for the purposes of individuating intentional states. Narrow content properties supervene on neurophysiological properties and so if Oscar satisfies one so do all his twins.[16]

There is an obvious tension between the view that broad content properties do not affect causal powers and the view that a property affects causal powers if it appears in the antecedent of a causal law. The tension can be removed easily enough by claiming that, despite appearances, there are no broad content causal laws. We suppose that this is Fodor's view. But if it is then he has not provided an account of the causal potency of ordinary content properties since these are broad.

AN ACCOUNT IN TERMS OF SUBJUNCTIVE CONDITIONALS Supervenient causation is too weak a notion to provide content properties with a sufficiently strong causal role. If, as Fodor hopes, it could be shown that content properties determine causal relations then they would possess a sufficiently strong causal role but we have cast doubt on the suggestion that this is compatible with physicalism. We want now to consider another way of understanding "causal potency."

When explaining why one thinks that possession of a content property makes a causal difference one is likely to make reference to certain subjunctive conditionals. For example, suppose that Clyde has decided to get some beer and believes that there is beer in the fridge. In these circumstances it would be natural to think that the following (and related) subjunctives are true:

If Clyde were to think that the beer is in the fridge then that would cause him to go to the fridge.

If Clyde were to think that the beer is in the cupboard then that would cause him to go to the cupboard.

We will call subjunctive conditionals of the form "If A were to be the case then that would cause B to be the case" *causal conditionals*. At any time t there will be many such causal conditionals which hold of Clyde. We suggest that these and related conditionals lie at the heart of the view that content properties are causally potent. To apply this idea to characterizing causal potency we will define a relation between event property pairs which, after Terry Horgan,[17] we call "quasation" (as in c *qua* F causes e *qua* G). As a tentative account of the quasation relation we propose the following:[18]

> ⟨c,F⟩ is quasally related to ⟨e,G⟩ iff c and e occur and are respectively F and G and there is some time before the occurrence of c at which these two conditionals obtain: (1) if c were to occur and be F then that would cause an event e to be G; (2) if c were to occur but not be an F then it would not cause an event which is G.

This proposal doubtlessly requires refinement. For example, we probably want to require that the properties F and G are not analytically or metaphysically connected to each other in order to express the idea that the connection between F and G is a *causal* connection. Some modification to deal with genuine causal overdetermination is also required. There are also problems concerning event individuation and the truth conditions of temporally indexed subjunctive conditionals which need to be addressed.[19] But the idea behind the account is straightforward. In the possible worlds which are most similar to the actual world at time t at which property F is instantiated by event c, c causes an event which is G and in worlds in which c fails to instantiate F it also fails to cause a G.

Let's see how this account fares with respect to the conditions we have laid down on a satisfactory account of causal potency. First, we want to show that content properties can appear in subjunctive conditionals 1 and 2 in the account of quasation above and their doing so doesn't compromise the principles of nonreductive physicalism even if content properties are not reducible to or explicable in terms of causal physical properties. To demonstrate this in full we would need to show that there is no incompatibility between subjunctive conditionals 1 and 2 globally supervening on physical facts (as required by nonreductive physicalism) and the property F possessing the features of content properties; and in particularly not supervening on neurophysiological properties and not being explicable in physicalistic terms. We cannot do that here but we do want to sketch accounts of both.

Suppose that Clyde's thinking that there is beer in the fridge fails to

supervene on his neurophysiological properties. This doesn't seem to provide any bar to the counterfactuals which occur in the definition of quasation obtaining. If there is a problem it is connected with the second counterfactual. The worry is that if Clyde were not thinking that there is beer in the fridge then he would still go to the fridge because he is thinking that there is twin-beer in the fridge. But if Clyde is anything like us then in all the closest worlds in which he is not thinking that there is beer in the fridge he is thinking that it is in the cupboard or some such thing. In any case, it is certainly a very distant world in which he is thinking that there is twin-beer in the fridge.

As far as we can see the non-existence of an explication of content properties in physicalistic terms doesn't present an obstacle to the causal potency (defined in terms of the quasation relation) either. If there is no physicalistic explanation of content properties then there will not (generally) be a physicalistic explanation of counterfactuals in which they occur. But unlike genuine causal laws we see no reason why counterfactuals must be physicalistically explicable to be true. It is sufficient that the counterfactuals globally supervene on physical facts and this is secured by assuming that worlds which are exactly alike with respect to physical facts possess the same similarity relations to other worlds.

The question remains of whether or not ⟨c,F⟩ is quasally related to ⟨e,G⟩ and the related notion of causal potency are sufficiently strong to rebut epiphenomenalism. First, it should be clear that we are not offering this account of the quasation relation as a way of claiming—as Fodor does—that content properties determine an event's causal powers. As far as we can see an event's causal powers are completely determined by its basic causal properties. Content properties are not needed for that. However, if ⟨c,F⟩ is quasally related to ⟨e,G⟩ then there is a perfectly good sense in which c's having F *makes a difference* to c's causal powers. This is the sense captured by the counterfactuals 1 and 2. To say that instantiating F makes a difference to what c causes is to say, in part, that had c not had F then it would not have caused a G. Of course, this counterfactual is true in virtue of certain physical facts obtaining. But that doesn't make these conditionals any less true or any less explanatory.

NOTES

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1. The distinction between properties which are and those which are not relevant to an event c's causal relations has been made by a number of authors. See our "Mind Matters," *The Journal of Philosophy* 93 (Dec., 1987): 630–642, for references. The first of the examples is from Fred Dretske, *Explaining Behavior* (Cambridge, MA: MIT Press, 1987).
2. We discuss this account of physicalism in "Nonreductive Physicalism" (forthcoming). The similarity between non-reductive physicalism and Davidson's anomalous monism is of course intentional. We discuss the differences in the paper cited.
3. See the articles on functionalism in Ned Block, ed., *Readings in Philosophy of Psychology* Vol. I (Cambridge, MA: Harvard University Press, 1980).
4. An externalist account of content is one which claims that content properties are constituted (in part) by relations between the bearers of content and something external; e.g., causes of tokening of the content. Davidson, Dretske, Burge, and Fodor all hold (different) externalist accounts.
5. See Jerry Fodor, *Psychosemantics* (Cambridge, MA: MIT Press, 1987), 39.
6. There are two senses in which we might speak of properties or predicates as being normative. Predicates like "is good" and "is true" are normative in that they are employed in making normative assessments. A predicate like "has the content that there is beer in the fridge" is normative in that something which satisfies it is, in virtue of satisfying it, normatively assessable, in this case in terms of truth value.
7. See "Nonreductive Physicalism" for a discussion of the compatibility of various supervenience claims and irreducibility.
8. Whether or not content properties are physicalistically or naturalistically explicable is a matter of considerable controversy. The most interesting proposals for naturalizing content are due to Fred Dretske, *Knowledge and the Flow of Information* (Cambridge, MA: MIT Press, 1981) and Jerry Fodor, *Psychosemantics* and "A Theory of Content Part II" (unpublished ms.) Criticisms of these approaches are to be found in Barry Loewer, "Information and Intentionality," *Synthese* 70 (1987): 287–317 and Paul Boghossian, "Naturalizing Content" in Loewer and Rey, eds., *Meaning In Mind*, forthcoming.
9. See J. Kim, "Epiphenomenal and Supervenient Causation," *Midwest Studies in Philosophy* 9 (1984): 257–270 and "Supervenience and Supervenient Causation," *The Southern Journal of Philosophy* 22 (Supplement 1983): 45–56.
10. Brian McLaughlin, "Event Supervenience and Supervenient Causation," *The Southern Journal of Philosophy* 22 (Supplement 1983): 71–92.
11. Kim is aware of this problem. In "Explanatory Exclusion and Mental Causation" he suggests introducing a contextual notion of supervenience so that although x's having a certain thought doesn't supervene on any causal property x instantiates it might supervene on a causal property relative to x's history.
12. See Jerry Fodor, "Making Mind Matter More," *Philosophical Topics* this issue.
13. See Brian McLaughlin, "Type Epiphenomenalism, Anomalism, and the Causal Priority of the Physical" in J. Tomberlin, ed., *Philosophical Perspectives*, forthcoming.
14. It appears that this burden will be even more difficult for McLaughlin to discharge since he is attempting to show that the causal potency of content properties is compatible with Davidson's view that there are not even one way bridge laws from physical to content properties.
15. See especially *Psychosemantics*, ch. 2.
16. The precise characterization of narrow content properties and the question of whether or not they are really intentional properties need not concern us here.
17. Terry Horgan, "Mental Quasation" in J. Tomberlin, ed., *Philosophical Perspectives*, forthcoming. Our account of "quasation" is similar to his which in turn is similar to the account we suggest in "Mind Matters."
18. A slightly different counterfactual proposal is discussed in our "Mind Matters," *ibid.*
19. Temporally indexed subjunctive conditionals have not received much discussion. The pioneering paper is A. Gupta and R. Thomason, "A Theory of Conditionals in the Context of Branching Time" in W. Harper, R. Stalnaker, and G. Pearce, eds., *Ifs* (Dordrecht: D. Reidel, 1981). A different semantics is to be found in Loewer and Belzer, "Ifs and Times" in press.