Causal Exclusion and Consciousness

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Abstract

I examine the question whether state consciousness is efficacious in the context of a more fundamental problem for mental causation known as "causal exclusion." Essentially, the generally accepted notion that physical events are part of a causally closed system entails that every neural event has a sufficient physical cause. So, barring overdetermination, mental events are unable to cause neural events. This result is a step in Jaegwon Kim's Causal Exclusion Argument (CEA). I argue that CEA poses a problem for conscious causation, and furthermore that proposed solutions to it do not necessarily secure the efficacy of state consciousness.

Keywords: Consciousness; mental causation; causal exclusion; supervenience.

Introduction

State consciousness is that property in virtue of which a mental state, as opposed to a creature, is conscious. It is likely that an agent's conscious mental states are relatively few compared to the many beliefs, desires, volitions, and perceptions that are not. If *being conscious*[1] is causally relevant, it would seem that instantiating the property must make a difference to a state's ability to cause mental or bodily events. More formally, let F be the set of causal powers a mental state m possesses, let G be the set of causal powers of that same mental state when it is conscious, m_c, and assume $F \neq G$. Since differences in causal powers supervene on differences in properties, $F \neq G$ entails that m_c's distinct causal potentiality is due to its c-property. A theory that holds consciousness to be causally relevant claims, at minimum, that at least once during an agent's lifetime, she is in a mental state that is like m_c, i.e., one whose causal potentiality depends (in part) on its being conscious.[2] A more theoretically robust and appealing claim is that an agent is regularly in such states, and that the causal powers afforded (or negated) by consciousness significantly affect behavior. There are, of course, further questions as to the kind of causal difference the property makes, the means by which it makes that difference, the cases in which it facilitates mental or physical performance, and so on. Yet a theory of "conscious causation" may well be a nonstarter if mental states themselves are causally inert: How can consciousness make mental processing more (or less) efficacious if it is not mental processing, but *neural* processing, that does the causal work?

In this paper I examine the issue of conscious efficacy in the context of a more fundamental problem for mental causation known as "causal exclusion." Essentially, the generally accepted notion that physical events are part of a causally closed system entails that every neural event has a sufficient physical cause. So, barring overdetermination, mental events are unable to cause neural events. This result is a step in the Causal Exclusion Argument (CEA) advanced in Kim (1998). I argue that CEA poses a problem for conscious causation, and furthermore that proposed solutions to it do not necessarily secure the efficacy of state consciousness. For even if conscious mental events can be plausibly "included" in the etiology of neural events and behavior, their efficacy *qua being conscious* is not entailed.

My procedure is as follows: First, I explain how the qua issue arises on an ontology that countenances events as causal relata. Second, I discuss CEA and various ways of preserving mental causation in spite of it, showing how these responses need not establish that state consciousness is efficacious. Third, I argue that the qua problem obtains only on a certain kind of theory of consciousness, namely, where the property is construed as intrinsic to the conscious state. Relational theories entail a distribution of causal powers between higher- and lower-order mental events, and I conclude by noting a theoretical advantage of that feature. The overall concern, then, is not whether and how consciousness is efficacious, but rather to clarify the causal metaphysics underlying the inquiry.

The Qua Problem and Mental Event Individuation

In accord with one convention, I assume that mental and neural *events* are metaphysically suitable as causal relata,[3] although not all properties or constituents of an event may be causally relevant to a given effect. Thus, if event c = my bowling ball strikes the last pin and event e = the last pin tips over, the ball's being spherical (a constituent of c) is causally relevant to e but not its having the name of the bowling alley engraved on it.[4] Similarly, if c = my

[1] Instead of this locution, I will sometimes use "c-property" to designate that property in virtue of which a mental state is conscious. The c-property may be intrinsic or relational, as will be discussed in sect. 4.

[2] According to Kriegel (2004), consciousness would contribute to or modify the state's "fund of causal powers." A theory that specifies this contribution meets what Kriegel calls the "singularity requirement," which is to "distinguish between the causal powers that a conscious state has and the causal powers it has precisely in virtue of being conscious" (p. 175). Rosenthal (2008) makes the same point with regard to the state's function: "[F]or states that are conscious, we must distinguish the function that is specifically due to its being conscious from the function that results from others of its psychological properties" (p. 830).

[3] See Davidson (1967).

[4] According to Horgan (1989), the causal relevancy factor makes causation into a four-place relation he calls "quausation": c qua F

deliberating what to eat for lunch and *e* = my deciding on a steak sandwich, *c*'s including an inviting mental image of such a sandwich is likely causally relevant to *e*, but perhaps not the brief thought about a bowl of pasta that in part constituted *c*, and perhaps not *c*'s being conscious. Other examples can be drawn from Hume's associative psychological laws: Bringing to mind the image of a tree may cause one to think of shade (ideas of causes bring to mind ideas of their effects) or perhaps a certain formal proof method (ideas of similar things bring each other to mind). But neither of these events, it would seem, are brought about in virtue of the tree image's property of representing green, which bears no causal association with shade and no similarity-based association with a branching form.

Clearly, if a property is causally relevant to an effect, it must be a property of a cause of that effect. Assume event *c* is *F*. If *F* is causally relevant to event *e*, then *c* is necessarily a cause of *e*.[5] The converse entailment, however, does not hold: if *c* is a cause of *e*, then *F* is not necessarily causally relevant to *e*. Thus, suppose an event with both mental and neural properties – e.g., one that is both a conscious volition and an action potential in the motor cortex – causes a finger movement. Despite the fact that a mental event causes the finger to move, its efficacy is not necessarily in virtue of being mental; for example, if CEA is sound, the potential is sufficient for the movement, and thus the event's being a volition, conscious or not, is causally irrelevant. Now suppose CEA is refuted and the conscious volition is shown to be a legitimate cause of the finger movement. It would not follow from such a demonstration that the volition causes the movement *in virtue of being conscious*. Thus, per an ontological view that parses mental events and their neural substrates as single events with both mental and physical properties, a double "qua" problem must be resolved to secure the relevance of consciousness to producing the finger movement: The event must be a cause qua mental event *and* the mental property must be causally relevant qua conscious mental property.[6] Alternatively, if we individuate two events, a mental one accompanying (and perhaps supervening on) a neural one, we still face a qua issue: Assuming mental event *c* causes event *e*, does *c* cause *e* qua *c*'s being conscious?

The problem, then, is that arguments for mental causation, i.e., arguments against the exclusion thesis, do not establish that conscious causation obtains: Every conscious mental event could be efficacious, in spite of supervening on the neural, without any conscious mental event being efficacious qua its c-property. And this would mean that the phenomenon of state consciousness lacks causal relevance. Before examining whether this difficulty, which I will call the "qua problem" for conscious causation, arises on several major theories of state consciousness, a review of CEA and its various counterarguments is in order.

Causal Exclusion and Nonreductive Physicalism

CEA presents a serious challenge to a theory of mental causation. If sound, it proves that all mental phenomena, including consciousness, are causally inert. In this section I will review certain counterarguments to CEA and show that they can secure the efficacy of mental events without establishing the causal relevance of the c-property that some of those events instantiate. First, I will briefly explicate Nonreductive Physicalism, a theory that according to Kim entails the causal exclusion of the mental by the neural.

Nonreductive Physicalism claims that mental events supervene on neural events but remain ontologically distinct from them; that is to say, they are separate entities. Although the notion of supervenience has been variously construed by theorists, one plausible definition of the relation is as follows: Mental event-type *m* supervenes on neural event-type *n* if and only if, for any time *t*, the occurrence of an instance of *n* at *t* is sufficient (but not necessary) for the occurrence of an instance of *m* at *t*. So if pain supervenes on C-fiber firing, a particular case of C-fiber firing entails that a particular experience of pain concurrently obtains. Thus the mental is "fixed" by the physical, and physical duplicates will be mental duplicates.

causes *e* qua *G*. Thus, the engraving might be causally relevant to the effect qua a falling at a very precise speed: since the engraving alters the ball's weight fractionally, it will alter the speed of the ball fractionally, and in turn the precise speed at which the pin falls. Nevertheless, it is plausible that there are constituents of the cause that fail to be causally relevant to *any* property of the effect, such as the particular shape of the engraving (within a range of shapes that make no difference to weight) or the color of the ball.

[5] This principle, I should add, only holds for *intrinsic* properties of events, a notion I will discuss in sect. 4. Suppose the event of my eating a hotdog in the stands has the relational property of occurring along with Jon's swinging the bat. That property is surely causally relevant to the homerun that follows, insofar as it is constituted in part by the bat-swinging, yet my snacking is not thereby a cause of the homerun.

[6] Davidson's (1991) monist metaphysics (putatively) allows a causal role for the mental to be preserved in spite of this problem. On that view, mental events are both mental and physical in virtue of conforming to both mental and physical *descriptions*. Thus, any event that can be mentally described can also be (in theory) neurologically described. And it is the referent of those descriptions that enters into causal relations. So if such an event is a cause, then a mental event is a cause. This proposition holds despite the fact that only the event's neurological description will be of use in formulating a strict causal law, since, Davidson argues, events as mentally described are anomalous. Presumably, state consciousness can be efficacious via the same reasoning: If an event that enters into a causal relation can be correctly described as a conscious event, then a conscious event enters into a causal relation. The typical counterargument to Davidson is that the extensions of mental and neural descriptions of an event are actually distinct *properties* of that event. So if that event can be shown to participate in a strict regularity only as neurologically described, that's because only its neural properties are entering into strict regularities and doing the causal work. In turn, the event's mental properties become causally irrelevant, i.e., the event is not efficacious qua its mental properties, including any c-property.

Yet the fact that *n* is not necessary for *m* means that *m* can obtain with some other (presumably neural) substrate: pain in an octopus, for example, may well be subvened by a different kind of neural activity entirely. Hence a mental event cannot be identical, or reducible, to a neural one.

Apart from preserving the reality of the mental and other theoretical advantages that result from this feature,[7] the supervenience of *m* on *n*, unlike the causation of *m* by *n*, secures *m*'s causal efficacy – at least prima facie. The reason is found in the metaphysical relation between *m* and *n*, which, although weaker than identity, is stronger than causation.[8] Depending on the version of the theory, *n* is held to *realize m*, where *m* is a functional role; *constitute m*, where *m* is a macrostructural event; or *determine m*, where *m* is a determinable. When *n* bears relations such as these to *m*, it can be argued that *m* causes neural events and behavior along with *n*. For example, Jackson (1996) argues that the constitution relation enables *m* to inherits *n*'s causal powers. "If mental state tokens are constituted by brain state tokens rather than being identical with them, it remains true that mental state tokens are in the brain and that their causal powers are those of the relevant brain state or states" (p. 389).

Yet according to CEA, *m* is preempted from causing any of *n*'s neural or behavioral effects – its supervenience on *n* notwithstanding. The reason is that any such effect – call it *e* – is physical and therefore its sufficient cause must be physical. The more general premise here is the causal closure of the physical domain (CCP): For any physical event *x*, if *y* is part of the sufficient cause of *x*, then *y* is a physical event. So if *m* is to be part of the sufficient cause of *e* along with *n*, *m* must be physical – but according to Nonreductive Physicalism *m* is irreducibly mental.[9] Now it might be that *m* can cause another mental event – *m′* – a scenario that would not breach CCP. However, this claim is problematic, for according to a sub-argument of CEA, the supervenience feature results in *m* and *n* competing for the causation of *m′*. Per Nonreductive Physicalism, *m′* must have a supervenience base, say *n′*, that is metaphysically sufficient for its occurrence. And per CCP, *n* (or *n* plus other thoroughly nonmental events) is causally sufficient for *n′*. So by the transitivity of the sufficiency relation, *n* is sufficient for *m′*, which seems to exclude *m* as a cause of *m′*.[10] Kim (1991) himself has suggested that mental events can satisfy a notion of supervenient or epiphenomenal causation: "When mental event M causes a physical event P, this is so because M is supervenient upon a physical event P* and P* causes P. … Similarly, when mental event M causes another mental event M*, this is so because M supervenes on a physical state P, and similarly M* on P*, and P causes P*."[11] Kim concedes, however, that insofar as supervenient causation depends upon subvenient causation, it is a lesser grade of causation: "It would be foolish to pretend that the proposed account accords to the mental the full causal potency we accord to fundamental physical processes," he adds (p. 264).

If we do accept supervenient causation as a means to secure the efficacy of mental events, presumably the efficacy of conscious mental events is also secured. Yet it would not follow that said events are efficacious *qua their being conscious*. Let us assume that *n* is the sufficient cause of both *n′* and *m′* (insofar as it causes *n′*, and *n′* is the supervenience base of *m′*). The fact that *m*, a conscious mental event, supervenes on *n* entails that *m* superveniently causes *n′* and *m′*. For *m*'s c-property to be (superveniently) causally relevant to these subsequent events, it must supervene on one of *n*'s properties. More than that, it must supervene on one of *n*'s *causally relevant* properties. As discussed in sect. 2, not all properties of a cause need be causally relevant to a given effect. Thus, *n* can have properties that are causally irrelevant to *n′*, and hence to *m′*. The c-property of *m* may supervene on one of those properties.[12] Thus, if the notion of supervenient causation

[7] E.g., it justifies calling the theory physicalism, as the mental is determined by, not merely correlated to, the physical.

[8] Indeed, Yablo (1992) has characterized supervenience as "a kind of 'supercausation' which improves on the original in that supercauses act immediately and metaphysically guarantee their supereffects" (p. 257).

[9] One objection to this argument may go as follows: Granted, *m* cannot be reduced to *n*; yet in virtue of its supervenience on *n*, it is, at a more fundamental ontological level, a nonmental phenomenon. And assuming the thesis that all fundamentally nonmental phenomena are physical, *m* counts as physical, which means that CCP is *not* breached should *m* be part of *e*'s sufficient cause along with *n*. In response, we can deploy the following stronger version of CCP, which does entail *m*'s exclusion. CCP*: For any physical event *x*, if *y* is part of the sufficient cause of *x*, then *y* is a thoroughly nonmental event. To say *y* is "thoroughly nonmental" is to say that any phenomenon that *y* supervenes on is nonmental *and y itself is nonmental*. CCP* is plausible in that, presumably, every neural event and every behavioral event can be given a complete causal explanation in terms of phenomena that are thoroughly nonmental, such as neural events, sensory stimuli, etc. So on CCP*, the sufficient cause of *e* can include *n*, since *n* is nonmental and supervenes on molecular events that are also nonmental. But it cannot include *m*, which is only *fundamentally* nonmental, in virtue of supervening on *n*. Though *m* is arguably physical according to Nonreductive Physicalism, it is clearly not nonmental on that theory, if the view is to remain distinct from Reductive Physicalism. Thus, CCP* seems to entail that *m* is preempted from causing *e* by the set of thoroughly nonmental phenomena that are causally sufficient for *e*.

[10] Observe that even if *m* can be a legitimate cause of *m′* in spite of CEA, if the causal chain of mental events that includes *m*→*m′* never includes neural events (i.e., there is no "downward causation," as Kim puts it), then we have another problem: how can mental events ultimately make a difference to behavior? Behavior is physical and its most proximate sufficient cause is physiological, so in order to affect behavior a mental event must be part of the etiology of neural events, which transgresses CCP.

[11] We can expand on this account to claim that a mental event's causing a neural event consists in the fact that the former has a realizer, constitutor, or determiner that causes that the latter.

[12] Heil and Mele (1991) suggest this possibility: Assuming that "the causal clout of a supervenient characteristic resides in whatever realizes that characteristic," they note that even if a

provides a valid solution to the exclusion problem, the solution would be the same for a mental event and its c-property: both would need to supervene on causally efficacious neural phenomena if they are to be efficacious. But a mental event's satisfaction of this criterion would not entail that its c-property does, due to the qua issue outlined in sect. 2. Essentially, where *C* is *m*'s c-property and *m* supervenes on *n*, *m* superveniently causes *n´* qua *C* iff there is some property *F* of *n* such that (i) *n* causes *n´* qua *F* and (ii) *C* supervenes on *F*.

The notion of supervenient causation is, however, a questionable one: why exactly should a mental event cause (even with less "potency," as Kim contends) the effects of its supervenience base? To be sure, a realizer, constitutor, or determiner necessarily entails that which it realizes, constitutes, or determines, and we might think that the supervening phenomenon is entitled to a causal claim on the effects of its base in virtue of being a necessary condition for that base to obtain. Yet from the fact that an event *c* is causally sufficient for an event *e* and *N* is a necessary condition for *c*, it does not follow that *N* is a plausible cause of *e*.[13] So instead of positing a distinct species of causation for mental events based on the supervenience feature, let us return to Jackson's claim that the phenomenon's causal powers simply *are* those of its base. Suppose *e* is a physical effect of *n*; *n* then has the power to cause *e* (under certain circumstances). For *m*, which supervenes on *n*, to "inherit" *n*'s power to cause *e* means either that *m*'s power to cause *e* is *numerically the same as* *n*'s power to cause *e*, or that it *duplicates* *n*'s power to cause *e*. The first construal, I argue, results in *m* being causally irrelevant: Presumably *m* is distinct from *n* (as it must be if *m* can exist with a different supervenience base), and for *m* to be causally efficacious as such is for it to have numerically distinct causal powers. Without its own power to cause *e*, *m* is causally irrelevant to the *n*→*e* causal process. The second construal is thus to be preferred if we are arguing that *m* has a causal role in this process: *m*'s power to cause *e* is numerically distinct from *n*'s.[14] And since (following CCP) *n* is sufficient for *e*, any further causes of *e* entail that *e* is overdetermined. As an additional cause, *m* clearly could not be necessary for *e* to occur, or *n* wouldn't be sufficient. It would instead be an additional sufficient cause.

Accepting overdetermination is thus another way of preventing *m*'s exclusion from causing *e*,[15] but there is another theoretical option that seeks to avoid the causal competition between mental and neural events altogether. The basic idea is that these events are causally active at distinct ontological "levels," just as macrophysical and microphysical events are. For example, if we don't want to be saddled with the view that a macrophysical event like sipping very hot tea is inefficacious (i.e., that its causal powers "drain" to those of the atomic properties of the tea), we hold, first, that the macro-event is a real entity; and second, that it causes a macro-effect: a scalding of the mouth, as opposed to certain atomic-level chemical alterations in the tissue. Similarly, a mental event like fearing a rabid dog would be a cause of one's running away, while the electrochemical activity in one's amygdala would be a cause of the "raw" behavior, or the corresponding events at the neuromuscular level.

Yablo's (1992) theory of mental causation, according to which a mental event supervenes on a neural one as determinable to determinate, allows for this kind of solution. Regarding the present examples, his point would be that just as the tea's atomic properties are a particular determination of the property *being very hot*, the amygdala activity is a particular determination of the fear: In both cases, the determinate is sufficient but not necessary for the determinable to obtain. Should the amygdala activity occur slightly differently, the fear would still obtain – and so would the running, ceteris paribus. Thus, neither is that specific neural event necessary for the running, meaning that it is not a *cause* of the running, Yablo argues. However, it *is* necessary for – and thus a cause of – the neuromuscular event that subvenes the running, for that event depends upon an equally specific neural cause. The fear, on the other hand, is only commensurate with the running: it lacks the right structure to be a cause of the neuromuscular event. So the fear and the amygdala activity are both efficacious; they just have different effects.

Whether we accept overdetermination or adopt the "levels of causation" view as a solution to the problem of mental

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mental state M supervenes on a biological condition C that produces behavior B, C will have "a range of features that have no bearing on its behavioral effects," and M's phenomenal features may supervene on those features of C. They write: "M may have characteristics – phenomenal characteristics, for instance – unrelated to its causal role. These might depend on characteristics of C that are themselves causally irrelevant to the production of B" (n. 18).

[13] To give a common example, a fire is causally sufficient to melt wax, and the fire could not occur without smoke, but the smoke is (quite arguably) not causally relevant to the wax's melting.

[14] Perhaps it need not even duplicate *n*'s power. Wilson (2005) explains that causal powers are distinguished not only by the events or properties they bring into nomological relations, but also based on the kind of "fundamental forces" they are grounded in. On this line of thinking, we may say that while *n* causes *e* relative to electrochemical forces, *m* causes it relative to *psychological* forces, which presumably would supervene on the brain's electrochemical forces.

[15] Yet the view may be no more plausible than supervenient causation, for reasons such as the following: (i) If *e* has a sufficient cause in both *m* and *n*, the standard counterfactual analysis of *n*→*e* would become problematic: if *n* did not occur, *e* presumably still would, in virtue of *m*. (ii) Overdetermination within the mind/brain would not only be widespread and systematic, but also arguably a result of evolutionary design. The latter, notably, is not a feature of other cases where overdetermination seems to occur (e.g., a firing squad's multiple shots simultaneously killing a person), and makes overdetermination in the mind/brain seem especially counterintuitive: Why would the mind/brain have been "engineered" with such causal redundancy? A case can be made for overdetermination in spite of such objections. See, for example, Sider (2003).

causation, it seems the qua issue remains for conscious causation. Suppose *m* and *n* are both (legitimately) sufficient causes of *e*: Does *m* cause *e* (or any aspect of *e*) qua being conscious? Suppose *n* causes *e* while *m* causes *e′*, which is the determinable supervening on *e*: Does *m* cause *e′* in virtue of being conscious? Now, assuming CEA is no longer an obstacle, conscious mental events will have their salient effects per introspection and folk psychology: a conscious volition to perform a particular movement at time *t* results in that movement at *t*; a conscious desire to buy milk together with beliefs that the store is open and has milk causes a desire to enter the store; a conscious perception of a stop sign ahead produces a belief that there is a stop sign ahead; a conscious perception of a rabid dog causes a feeling of dread; and so forth. But there need not be some aspect of these ensuing mental events and behaviors that the conscious causes produce qua being conscious. In virtue of the c-property, a conscious mental event may have processing effects that are neither available to introspection nor recognized by folk psychology. For example, the event's representational content – roughly, the information it carries about conditions in the world – may become poised for use by brain modules that subserve functions such as executive control of action, creative thinking, and explicit learning and memorization.[16] If a mental event transfers its content to these modules *qua being conscious*, while it causes behaviors and subsequent introspectible states *qua its other psychological properties*, the causal demands may seem overly taxing on a single mental event. But as we shall see, conscious causation does not necessarily entail the qua problem.

The Qua Problem and the Nature of State Consciousness

The qua issue for conscious causation only arises on one kind of view of the nature of the c-property, namely, where it is *intrinsic*[17] to the mental event that instantiates it. There are two types of theory that so characterize the property: first-order representational (FOR) views and what are sometimes called "self-representational" views.[18] Neither of these kinds of theory makes recourse to a mental event or state apart from the conscious state in order to explain its being conscious. The first holds that a conscious state (at least a perceptual one) is distinguished, inter alia, by its fine-grained – and thus nonconceptual – representational content.[19] In other words, such states carry information about the world that is not structured by our concepts, and this is supposed to explain their qualitative "feel." The latter theory holds that such a state contains an intentional content that represents that very state; e.g., a conscious perception of a house is "about" the house as well as itself, which is supposed to explain the putative fact that conscious states are those we are aware of being in.

Since these properties – nonconceptual content and self-representation – do not consist in distinct mental events or states accompanying the conscious state, they are nonrelational. The consciousness-conferring representational content is *borne by the conscious event*; it is thus "internal" to the event (to the extent that said representational content is internal). In contrast, some higher-order representation (HOR) theorists hold that a mental state is conscious when it instantiates a relational property: being represented by a separate mental state. That state can be a belief or thought, according to higher-order thought (HOT) theorists, or a quasi-perception, according to higher-order perception (HOP) theorists.[20] On the first type of view, a perception of a house is conscious in virtue of being accompanied by the thought that one perceives a house. On the second, the perception is represented by some state of a hypothesized "internal attention" system.

First let us observe that the qua *question* can be posed about both intrinsic and relational properties. Returning to the case where event *c* = my bowling ball strikes the last pin, and event *e* = the last pin tips over, we can ask whether *c* caused *e* qua the bowling ball's sphericality. If *c* = Taft prosecutes a monopoly, and *e* = the monopoly dissolves, we can ask whether *c* caused *e* in virtue of Taft's slow metabolism. Each of these qua questions applies to an (arguably) intrinsic property of a cause. But consider the ball trajectory's spatial location and Taft's being president. Whether these properties are instantiated depends on conditions outside the object and the man, respectively, so they are relational properties. Yet it seems we can still say the ball knocked over the pin in virtue of its trajectory, and that Taft dissolved the monopoly qua his being president. The reason is that the causal powers in question depend on

[16] For elaboration on the notion of "global access," see Baars (1997). Block (1997), of course, distinguishes these access relations a state may have from its phenomenality. I am here suggesting that the property of being phenomenally conscious may afford a state the power to enter into these access relations. Block puts it more colorfully: "Perhaps there is something about P-consciousness that greases the wheels of accessibility" (p. 402).

[17] The notion of intrinsicality is admittedly contentious, and a full discussion of what it means and what kinds of properties are intrinsic is beyond the present scope. But roughly, a property of an event is intrinsic to it if that property ontologically depends only on how things are within the spatiotemporal extent of the event; in other words, the property is "internal" to the event, in the literal, spatiotemporal sense. So a complete description of that property would involve no reference to anything apart from the event.

[18] The latter is a more recent proposal. See Kriegel and Williford (2006).

[19] For example, on Tye's PANIC theory, such a state has Poised, Abstract, Nonconceptual, Intentional Content. While the abstractness and nonconceptuality of the state's intentional content are arguably intrinsic to the state, the property of being poised is that of standing "ready to make a direct impact on beliefs and/or desires," as Tye explains (2000, p. 62). Depending on one's analysis of dispositional properties, poisedness may not be intrinsic to the state. But in any case, no introspective awareness of the state – mediated by a higher-order mental state – is needed for it to be conscious.

[20] Theorists who hold this type of view include, respectively, Rosenthal and Carruthers; and Armstrong and Lycan.

certain conditions external to the event that has those powers, and those conditions constitute relational properties of the event: the event is *such that* those conditions obtain. So Taft's power of dissolving the monopoly depends on others recognizing him as president, which is to say his being president. Similarly, a certain causal power of a mental state *m* may depend on a condition external to *m* obtaining, namely, a distinct mental state *m** that represents *m*. And then *m* could be said to exert that causal power qua being represented by *m**. At least, it would make sense to *ask* whether a mental state is efficacious qua its relational, consciousness-conferring property, just as we can ask if an action of Taft's is efficacious qua the relational property of his being president.

Nonetheless, there is no qua *problem* for conscious causation if the c-property is relational, i.e., if being conscious consists in a distinct mental event with suitable representational properties obtaining. For on that view, a successful argument for mental causation *would* establish that conscious causation obtains. If every mental event were efficacious, in spite of supervening on the neural, the efficacy of any mental event qua its being represented by a distinct mental event (a HOT or HOP) would not follow. What would follow, however, is that those higher-order representational events themselves are efficacious despite supervening on the neural. And this means that the phenomenon of state consciousness is efficacious, since those higher-order states constitute the phenomenon.[21] Essentially, if mental events are not causally excluded by neural ones, then neither are higher-order representational mental events excluded. But if the c-property is intrinsic to conscious states, then even if the exclusion problem *is* solved for those states, there is still an outstanding qua problem on which the efficacy of consciousness turns.

I conclude by sketching how relational theories of state consciousness may afford a better division of causal labor. State consciousness is clearly *associated* with executive control, explicit memorization, and other characteristics of globally accessed content. If the reason for that association is that it *causes* that access, the dissemination of first-order content to the relevant modules would be handled by a distinct, higher-order state – one that may be located in those very brain areas. On this scenario, a conscious volition to make a certain bodily movement, for example, would not cause the global access of its own content through some intrinsic c-property it possesses. Rather, its causal powers would be devoted strictly to producing the movement, while the higher-order representation of that volition would facilitate the dissemination. Here is an example of how the facilitation might run in the case of perception: Suppose that a conscious perception of an apple on the table occurs in the visual cortex, while the higher-order representation of that perception that renders it conscious obtains in an area subserving executive control, such as the prefrontal cortex. Now, the higher-order state carries the information that the visual cortex is in a certain representational state, not the information that there is an apple on the table. So the fact that the higher-order state occurs in the prefrontal cortex does not entail that the executive module accesses the latter content. But if the executive *does* access that first-order perceptual content, one cause is plausibly a signal that the visual cortex is in a certain representational state. And the executive receives that signal precisely when a suitable higher-order state arises in its neural region.

[21] So, contra the definition proposed in sect. 1, the causal power of state consciousness need not consist in altering the causal potentiality *of conscious states* (i.e., first-order states), but simply in higher-order states' own causal powers.

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