

Causal Closure and the Possibility of Dualism

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In the dialogue about the relationship of the human mental life and the physical body, many philosophers find a premise known as “causal closure” helpful or even necessary in developing their theories. The causal closure premise asserts that as we seek to explain events in the physical world, our explanations will never be forced to go beyond the interactions of matter and energy. Causal closure has important implications for various theories of mind, and it precludes some of them from being true while commending others as more likely explanations. After a deeper exploration of the meaning of causal closure, I will argue that the fact of causal closure would make materialist theories much more likely to be true, and preclude all but one dualist theory from consideration. This dualist theory, namely epiphenomenalism (a form of property dualism), is logically compatible with causal closure. However, other forms of dualism would necessarily falsify causal closure, while the truth of causal closure necessarily falsifies any theory of dualistic interactionism with downward causation from the mental to the physical.

Before discussing the implications of causal closure on various theories of mind, we would do well to gain a clearer picture of what causal closure means. In the simplest possible terms, to say that the physical world is “causally closed” means that physical events only have physical causes. For each physical event X in a causally closed universe, there is some earlier physical event W that – given the laws of an ideal physics – completely accounts for X . By “completely accounts,” I mean that the nature of the event W necessarily caused the later event X according to the predictions of physics. The event X had neither lost nor gained energy or matter spontaneously, inexplicably, or from some other non-physical realm. In defining the relations and origins of physical events, we will never require recourse to non-physical explanations.

This understanding of causal closure rests on a number of assumptions, some are definitional and others contingent upon scientific theories. First, the definitional assumption is that causal closure only restricts outside causes from affecting the physical world, not vice versa. In other words, I am assuming a loose meaning of causal closure that is unidirectional. Events in the physical world may or may not affect other non-physical domains, but if there are non-physical domains they will not affect the physical world. It would be possible to assume a strict definition of causal closure such that physical events are neither caused by nor do they cause events in other domains. This would be a bi-directional restriction on causation. Jaegwon Kim seems to define this position in his book *Philosophy of Mind* when he says, “If x is a physical event and y is a cause or effect of x , then y , too, must be a physical event” (147). The significant emphasis for our strict definition is that if y is an effect of x , then y must be physical also. This means that if other non-physical domains exist, they are unaffected by physical events, because all of the effects of the physical domain are themselves physical. Unless otherwise noted, I will assume the loose, unidirectional meaning of causal closure for the remainder of the paper. Note that under this definition, physical events might have non-physical effects if other domains exist, but they cannot have non-physical causes.

A second thing to note about our definition of causal closure is that it does not limit the boundaries of concrete reality to the physical world. It is not concerned with the contents of the whole of reality; instead, it is only concerned by the nature of causation within our spatio-temporal domain. In theory, there might exist parallel universes or even spiritual beings floating

around our heads, but we assert that the existence of these does not seem to have affects in our physical realm.

The third important point regarding causal closure is that there may be ambiguity as to whether causal closure is asserted as an *a priori* and necessary fact, or whether we have come to believe it *a posteriori* because of empirical observation. Some philosophers might say that these two are not mutually exclusive: As a result of empirical observation, we assert a rule that causal closure is necessarily true about our physical world. A more humble version might say that empirical observation leads us to believe in causal closure, but future discoveries or changes may disprove that view. The importance of this distinction will be seen later as I discuss emergentism and substance dualism.

Finally, we must recognize that our concept of causal closure rests on a belief or assumption that some idealized form of physics and chemistry would be able to account for all the phenomena in our universe. Although we have thorough scientific theories that allow us to predict much about the world, there remain significant gaps or difficulties. Most important is the fact that our current micro and macro understandings of physics are incommensurable. Scientists recognize that Newtonian physics and relativity theory are both incompatible with quantum mechanics. Thus, when we speak about the potential problems for reconciling mental causation or substance dualism with the predictions of physics, we assume or infer (at least in part) the idea that there is some Grand Unified Theory out there, even if we don't know it just yet. Given our current state of scientific knowledge, the varied "predictions of physics" are incompatible with themselves. So we assume that there is a consistent set of theories that, if we had them, would be liable for interruption by dualistic interaction.

As we discuss the various materialist and dualist theories of mind, each will rely on concepts of substances and properties. A substance is something that exists independently, or potentially could do so, and has a number of attributes that could be listed to describe it. These attributes describe its nature and manner of existence and being, and are called properties. Generally speaking, the dualist will tend to assert two distinct types of substance or property that define the mental as somehow different than the rest of the physical body. The materialist, by contrast, will attempt to explain the whole human being within the framework of a single type of substance and a single set of properties.

If the causal closure of the physical world is true, then it seems to rule out two dualist theories of mind: Cartesian dualism and emergentism. Cartesian dualism is the strongest form of dualism, and probably the least popular in the academic mainstream. It asserts that the human person is a union of two radically different substances: body and mind. The body is a spatially extended, objective, and mortal substance, while the mind is a substance that is immortal, subjective, and not spatially extended. Somehow, despite their nearly opposite set of properties, dualists believe that these two substances work in concert to form the human person. This dualism entails interaction between the mental and physical going in both directions, the physical affecting the mental and the mental affecting the physical. Due to this latter aspect, the theory is in conflict with causal closure. Since the substantive mental life is taken to be an independent causal agent, which can act without regard to a physical chain of causation, we see that the Cartesian mind would interfere in the physical world. Thus, if causal closure is true, this theory must be false.

Emergentism is a theory of property dualism that is also too strongly dualistic to be permitted in a causally closed framework. This is a theory that says that certain types of complex organizations of matter will give rise to properties completely unrelated to and unpredictable through their underlying physiochemical reactions. Simply stated, when complexity becomes

great enough under the right conditions, “the whole is greater than the sum of its parts.” Emergentism relies on three basic principles. The first is very compatible with materialism, declaring “ontological physicalism,” or the idea that everything in our spatio-temporal existence could be described in terms of and reduced to the basic particles of physics. The second emergentist premise draws in some troubles for materialism, saying that unique new properties will emerge from systems with high levels of structural complexity. Finally, these new emergent properties are not reducible to their component lower-level reactions; they are inexplicable in these more basic elements; they are unpredictable and irreducible (Kim 227-228). If these properties were reducible to simpler interactions and thereby physically predictable, then their effects would fit within the framework of causal closure. If they were irreducible but had no effects on the physical world, they would also be allowable within the picture of loose causal closure (unidirectional causal closure). Instead, the theory says that they are both unpredictable and exhibit effects in the physical world. This being the case, emergentism cannot be true if causal closure is true. Although it is a nonreductive physicalist theory, the fact of “downward causation” – that non-material events have material effects – stands in the way of its acceptance by a theorist who accepts causal closure.

One thing should be noted about the definition of causal closure and the possibility for Cartesian dualism or emergentism as legitimate theories. If we declare causal closure to be an incontrovertibly true fact about the universe, then there is no possibility that either of these two theories could ever be acceptable. If, however, we take causal closure as an empirically established rule of thumb that makes downward causation unlikely or unheard of in the past, there is still a possibility that either of these could prove useful or true at some point in the future. In theory it is possible that something like Cartesian souls currently exist in a parallel dimension, with one assigned to each living person but not causally interacting. These parallel souls may be dormant and non-interfering now, but have the ability to cross over into our realm at some point and affect our actions causally. While there is no reason to suspect this prior to seeing evidence of the souls influencing our realm, it certainly admits of logical possibility. Similarly, even if causal closure is true now because emergentism does not occur, there is no reason to suggest why it could not happen in the future or upon some very complex system. This explanation is intended to demonstrate the importance our interpretation of the causal closure principle can have for our openness to theories being true now or in the future. If causal closure is a dogmatic certainty for us, we will find many less theories open as potential mind-body explanations.

Causal closure does not necessarily deny all forms of dualism. Epiphenomenalism is a form of property dualism that fits within our definition of causal closure. According to this theory, mental properties result from physical properties and interactions, but have no reciprocal effect. Whereas emergent properties spring irreducibly from complex states, these mental properties may result from simple or complex states. They are not reducible to the physical realm, but neither do they affect it. Epiphenomena are merely byproducts of the physical aspects of brain activity, but can have no causal role in affecting brain states. Thus, dualism could be a valid theory, even if causal closure is true, in the form of epiphenomenalism. Under the strict definition of causal closure, with bi-directional restrictions, this would no longer be true and this form of dualism would also be unallowable.

Other materialist or physicalist theories that avoid the complications of substance or property dualism would necessarily find themselves valid for consideration given causal closure. These theories reconcile easily with the demands of either strict or loose causal closure because they rely completely on one material substance with one set of properties that belong much more comfortably in the physical domain. Therefore, it seems that the truth of causal closure would

rule out the stronger forms of dualism and only allows for the possible truth of epiphenomenalism.

On the other hand, if the stronger forms of dualism (those that include downward causation) were true, like Cartesian substance dualism or emergentism, these would seem to interrupt the predictions of physics. When a non-physical cause has effects in the physical world, we tend to think of this as a divergence from the way the basic particles of the universe usually behave. We should keep in mind, however, that there is no ideal physics that we now know of that strong dualism would be interrupting. Thus, in some sense it is not yet certain that there is this complete physics for dualism to be interfering with in the first place. The conclusion that dualism could interfere with the predictions of a complete physics would not be the case, however, if property dualism in the form of epiphenomenalism were true.

In conclusion, the various forms of causal closure and the various forms of dualism seem to complicate the seeming dichotomy between causal closure and dualism. While they may seem opposed initially, weaker forms of dualism are compatible with causal closure. It is only when we consider the strong dualisms or strict causal closure that they become entirely incommensurable. Epiphenomenalism is a form of property dualism that allows dualism to be true even if we admit of causal closure. Similarly, dualism in so far as it is epiphenomenalism need not interfere with the predictions of an ideal physics. In fact, epiphenomenalism is not an extremely well accepted theory. Although the fact that it seems to pave a middle road and allow some reconciliation between dualism and causal closure, most theorists tend to avoid this philosophical centrism in favor of a stronger position on one side or the other. This may be particularly true because the “useless” epiphenomena begin to appear as a multiplication of hypotheses that ought to be removed by the principle of parsimony. Therefore, given epiphenomenalism’s lack of popularity and excess hypotheses removable by Ockham’s razor, in most cases it would be acceptable and correct to characterize dualism and causal closure as essentially opposed to one another and mutually exclusive. Generally speaking, the truth of dualism would make causal closure very unlikely, and the truth of causal closure would make dualism very unlikely.