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The causal argument for physicalism

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In the mind-body problem context, physicalism is the doctrine which regards mental states as identical to physical states. In this essay I shall present a widely accepted argument for physicalism which is based on an analysis of the nature of mental and physical causation to arrive at the assertion of identity of mental and physical states. I will evaluate arguments for and against each premise and attempt to show that the argument does not have the force to arrive at its conclusion.

Before the causal argument for physicalism is stated, a clarification of the context and some definition of terms used is in order. We are interested in establishing what is the nature of the mind in relation to its physical support, the brain. Mental states are all abstract products of mind activity, conscious and unconscious. For simplicity, I will restrict my analysis to conscious mental states.

Some examples of the vast class of conscious mental states may be: thinking of a cold drink, the pleasure sensation which arises from biting an apple, the pain caused by a needle on the skin, the shame felt on hearing an embarrassing remark, my decision to walk towards a friend to apologise, and so on. Physical states are all material states outside and inside the human body. In particular brain physical states are the material arrangements of brain constituents which underpin a mental state. For example, in the case of the mental state of shame, the corresponding physical state would be the particular pattern of neurons firing or the electrochemical activity which occurs in a person’s brain when registering at a conscious level the feeling of shame.

It should be noted that some of the language used above to define mental and physical states (such as underpinning, corresponding) may sound from the start at odds with the physicalist thesis which asserts
strict identity between mental and physical. Truly, the very existence of two separate definitions is possibly a by-product of dualism, the doctrine which, in opposition to physicalism, holds that mental and physical states are ontologically separate entities. Dualism is a common intuitive position and a much older philosophical doctrine than physicalism. Whilst this may justify a use of language which reinforces the separation of the two realms, it is a matter of theoretical analysis to establish whether physical and mental are indeed ontologically separate – this will be the work of the causal argument. At any rate thought, independently of the conclusion of the causal argument, the mental and the physical realm can be separated on an epistemological level. That is to say that we can give simultaneous alternative descriptions of same reality. Take for instance the state of shame caused by an embarrassing remark. It is not mutually exclusive to refer to that state in terms of abstract shame caused on hearing a remark or as a detailed occurrence of electrochemical processes in the brain. Two distinct descriptions can coexist independently of whether the two referents of such descriptions are ontologically distinct or not.

The causal argument for physicalism is thus stated [Papineau, 2002, p 17]:

I) Mental states have physical effect
II) All physical states have physical causes
III) The physical effects of mental states are not always caused twice
Therefore: mental states are identical to physical states.

Premise (I) allows for the possibility of mental states to cause physical states. This salvages the intuitive common sense notion that things like decisions and desires have efficacious causal power. If I decide, after some internal deliberation, to walk towards a friend and
apologise for my wrongdoing, I wish to be able to assert that the mental state representing my decision has the power to cause the physical realisation of me walking towards my friend.

Premise (II) is an expression of the completeness of physics, it affirms that it is possible to trace the causal history of a physical state back to its original physical cause. Using my example above the physical state of me walking towards my friend is realised by some muscular activity coordinated by vision and balance capabilities which in turn are commanded by brain activity, which in itself is constituted by electrochemical reactions and neurons firing.

So far, premise (I) stated that some physical effects have mental causes whilst premise (II) stated that all physical effects have physical causes. It now follows that all those physical effects which have mental causes also have physical causes. This is undesirable, as generally an effect requires only one sufficient cause. Premise (III) therefore excludes the possibility of systematic distinct double causation, also known as overdetermination.

If the three premises are true, then the conclusion logically follows: mental and physical states are one and the same. This is the tenet of physicalism.

Before I put under some pressure the premises of the causal argument, I wish to clarify how the argument operates to establish the identity of mental and physical states. The argument’s central concept is that of causation between states. Suppose we represent a generic mental state as $S_m$ and the corresponding underlying (or identical - in physicalist terms) physical state $S_p$, where the sub-script m and p denote mental and physical respectively. The causal argument instructs us to identify states as causes (C) and effects (E) in a causation
relation. Premise (I) states that $C_m$ causes $E_p$. Premise (II) connects $E_p$ back to $C_p$. Premise (III) denies that $C_p$ and $C_m$ be distinct, hence $C_m = C_p$. The subtlety here is that causation does not run, so to speak vertically, between a mental state and its underlying equivalent physical state, but, so to speak horizontally, from one state across to its consequent state. Using our example, my deliberation to walk towards my friend does not cause the physical brain arrangement corresponding to the mental state of deliberating, for otherwise the argument would absurdly conclude that cause and effect coincide. Rather, the mental state of deliberating causes the quite separate physical state of me walking. Whether this state may or may not have a conscious mental twin, is beside the point. What matters is that this new physical state has a physical origin in the brain. So the causal circle can close.

I shall now present some standard objections to each premise of the casual argument and will put forward my view in endorsing or refuting them.

Denying premise (I) means denying the causal power of mental states. Whilst this at first pass seems implausible, for how could we deny the seemingly straightforward evidence that my decision to reconcile with a friend causes me to walk towards him, it does in fact gain ground if one questions whether the consequentiality between my mental state of decision and my waking towards him does constitute genuine causation. We can certainly grant that there is some correlation between my mental state and its physical consequence, but does this correlation amount to what is properly understood as causation? Segal [Segal, 2008] argues that it does not.

Segal’s argument is centred on an analogy between mental causation and an equivalent paradigm scenario. On one side of the analogy we have our correlation between a mental state and its
consequences (say, decision to walk and physical walking) and on the other a correlation between a stone thrown against a window and the window breaking\(^1\). What is analogous in the two scenarios is the \textit{macroscopic} feature of the mental state and of the stone’s properties which are involved in the explanation of why the stone breaks the window. The breakage of the window is ascribed to the right combination of the stone’s mass, hardness, impact strength and shape in relation to the corresponding window’s properties. These properties are macroscopic in that they make no direct reference to the atomic, or other low level constituents of the stone. Segal observes [Segal, 2008, p 25] that

\[\ldots\] Once you understand the concepts involved, you will see that a thing with the properties of the stone would break a thing such as the window, under the relevant circumstances. The explanation includes no appeal to conceptually or metaphysically contingent laws of nature. It just follows from the correct account of the properties and of relations between the two things, that the stone would break the window.

and concludes that the stone’s properties do not technically \textit{cause} the breakage of the window because no law of nature is involved, only metaphysical necessity. The establishment of a law between the relata of causation is a mandatory consequence of genuine causation being in place. Segal’s thesis is that macroscopic properties cannot be efficacious in bringing about their characteristic effects [p 31]. To say that a stone breaks a window `because’ of certain of its properties does not involve a causal `because’, but one which means `by reason of’ [p 31]. So we should say of apparent macroscopic mental state causation.

\[\text{\textsuperscript{1}}\text{I am using neutral terms such as `correlation’ and `consequence’ to avoid commitment to terms naturally used in the context of causation such as `causal relation’ and `effect’ precisely because their technical applicability is at stake here.}\]
I contend that, on the contrary, macroscopic properties do account for genuine causation and can indeed be related by laws. If it is not proper to say that the window breaks because of certain properties of the stone, then what else is doing the causing? Surely not other not-yet-specified macroscopic properties, for they would be similarly unworthy of genuine causation. The only option is to look for corresponding microscopic properties. True, causation and laws of nature hold at the microscopic level, and I would argue that in virtue of this, laws do hold between corresponding macroscopic, coarse-grained, properties too.

To say that increase in pressure in a cylinder causes the piston to move down, is a causally valid explanation, in the same way as the microscopic description of gas atoms colliding on the piston surface would be. The existence of laws in the microscopic picture guarantees the existence of laws between corresponding macroscopic variables. Both descriptions fulfil the requirements of genuine causality.

Segal however seems to deny the possibility of macroscopic laws of physics. Indeed macroscopic laws are possible in physics as well as in other sciences [Fodor, 1974] and are used whenever microscopic treatment is theoretically impossible or rendered inconvenient by the complexity of the system.

To return to our mind-body problem, I agree with Segal in asserting that mental causes differ in nature from physical causes (I will have more to say about this in the context of premise (III)), but I disagree that the stone analogy is appropriate to arrive at this conclusion, as I have argued above.

If one still wishes to deny premise (I), then one has to accept the mandatory consequence that causation only takes place at microscopic
level, or, to keep to our mind-body problem, at brain level. This is epiphenomenalism, the doctrine that mental states have only apparent causal power, being mere disconnected dangling manifestations of processes occurring at physical level.

Let us now turn to premise (II). Papineau clarifies that the completeness of physics is an empirical result based on the historical evidence of development of physics as a field of study [Papineau, 2002, p 46 and Appendix]. I take it that to say that physics is complete does not mean to claim that physics, as it stands today, has the capacity to provide a full-detail causal history of any given physical state. The neural activity and the chemical-muscular activity which underpins my deciding and walking towards my friend typically is not under study in physics departments. Not least the atomic structure which provides the underlying architecture for such neural and chemical activity. Fortunately, all premise (II) requires is the belief that for any given physical effect, a purely physical causal chain exists, even if unknown in detail.

However, my serious concern here is that the notion of physical is not well defined and may generate difficulties. Papineau fixes “physical” to be read as “inanimate” [p 41], meaning ‘non-mentally and non-biologically realised’. Whilst this fixes what physical is not, it leaves open what physical might be, and that is indeed a bottomless descent towards more and more fundamental constituents of reality, for ultimately, what is quintessentially physical is what lies at the very bottom of the complexity hierarchy. The difficulty here is that what might be operating tacitly in the background is the assumption that the so called ‘physical state’ featuring in premise (II) is in fact reducible at will towards the fundamental constituents of reality. That reductionism is true seems to be a further thesis built-in the argument. But as far as I can see, conservatively speaking, there is no guarantee that the
physical state of me walking towards my friend can legitimately be said to be realised by a tangle of `superstrings’, or whatever else the bottom of the complexity hierarchy might have on its menu today.

Premise (III) is innocuous if one has accepted the objection to premise (I) that mental states do not constitute proper causes. Since I have tried to dismiss that objection, and simultaneously feel the pull for a negation of a strict identity of mental and physical states, I must be concerned about overdetermination.

My view is that the charge of overdetermination is not applicable because mental and physical causes, whilst both qualifying for the pedigree of proper causes, are nonetheless causes of different nature, thus there is no conflict between them.

Mental causation answers to rational, intentional reasons, whilst physical causation answers to mechanical, procedural causes. Asking why my decision to apologise to my friend leads to my walking towards him illuminates two senses of the words `why’, with two corresponding and independent senses of `because’. There is a mechanical `because’ which accounts for the detailed physical workings of my body parts, down to whichever degree of detail is felt appropriate. And there is a rational `because’ which accounts for the reasons and intentions of my action. The realm of the physical is inhabited by laws with predictive character, whilst the realm of the mental is inhabited by laws with normative character [Davidson, 1970]. Davidson demonstrates [p 222] that laws in the two realms are incommensurable in nature. Indeed, mental laws are not laws at all as they are standardly understood in the physical realm.

Mental states, in Davidson’s view – which I endorse - are responsible for an agent’s action. Actions are the decisive element in the
picture of mental causation. Actions are liable to interpretations and interpretations are guided by normative constraints. What is defining of my action of walking towards my friend in response of my decision to do so, is that the action may be, so to speak, cancelled if a new decision to do so arises and overrides the initial one. The possibility of transgression of the norm is peculiar to the mental and is absent in the physical causal chain, which instead features strict mandatory causality.

I regard normative reasons and physical causes as distinct and complementary causes of action which constitute no ground for overdetermination.

Finally, because of the re-qualification of the concept of cause as distinct in the mental-to-physical causation process with respect to the physical-to-physical causation process and because of the consequent rejection of the charge of overdetermination expressed in premise (III), I can conceive of premise (I) and (II) to hold without contradiction. Having removed premise (III) from the deductive argument I can now refute the conclusion that mental and physical states are identical.
References


