Does the Conscious Mind Obey the Laws of Physics?

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Abstract

According to the laws of physics, the state of a physical system can only be measured by another system (usually a particular measuring device) via a physical interaction. However, when our brain is in a conscious mental state, it can in principle output the information about its physical state based on the psycho-physical correspondance between the mental state and the physical state. It is argued that this suggests that the conscious mind violates physical laws and it is not physical as physicalism claims.

Key words: Conscious mind; mental state; physical state; physical laws; physicalism

In a previous paper, I have argued that solipsism is wrong, and there must exist an external physical world besides one's mind, which is governed by the laws of physics such as quantum theory (Gao, 2024). In this paper, I will further analyze how one's mind relates to this physical world. In particular, I will argue that the conscious mind violates physical laws, and thus it is not physical as physicalism claims.

The basic argument can be formulated as follows. First, a person being in a conscious mental state can be aware of being in this mental state. For example, a person seeing a red spot on a white screen can be aware that she is seeing the red spot. Next, there is a psycho-physical correspondance between the mental state and the physical state or neural correlates of consciousness,

e.g. a person seeing a red spot corresponds to a certain brain state or neural activities in her brain, and the correspondance rule or an approximate version of it can be known by experiments. Then a person seeing a red spot can in principle report her brain state based on the psycho-physical correspondance rule, such as which brain regions are activated. In other words, our brain being a physical system can directly output the information about its physical state. Third, according to the laws of physics, the state of a physical system can only be measured by another system (usually a particular measuring device) via a physical interaction. This means that the state of a physical system cannot be known without being measured by a measuring device. For example, our brain state can only be measured by another device such as a MRI machine. Therefore, we have arrived at a contradiction.

The above argument can be summarized as that the following three claims are incompatiable:

(C1). A person being in a conscious mental state can be aware of being in this state;

(C2). There is a psycho-physical correspondance between the mental state and the brain state, and the correspondance rule or an approximate version of it can be known by experiments;

(C3). The state of a physical system such as our brain can only be measured by another system via a physical interaction.

(C1) is a claim about certain properties of a conscious mental state, and it can be verified by introspection. (C2) is a claim accepted by almost all views on the mind-body relation including physicalism. (C3) is a consequence of the laws of physics. According to (C1) and (C2), our brain being a physical system can output the information about its physical state without being measured by an external device. But this contradicts (C3), which is entailed by the laws of physics. Therefore, we can conclude that the conscious mind does not obey the laws of physics and thus it is not physical as physicalism claims.

The above argument against physicalism can be regarded as a further development of previous arguments (e.g. Nagel,1974; Jackson, 1986; Chalmers, 1996). These arguments such as Jackson's (1986) knowledge argument concern only the distinction between the mental properties and the physical properties, and the derived results can hardly be decisive. By contrast, the new argument uses the psycho-physical correspondance to make the contradiction happen *only* at the physical level, namely be between two claims about the physical world. This will make the result more definitive.

There are three possible objections to the above argument. The first one is that when a person reports her brain state, her brain state will be changed by the report process (including using her memory about the correspondance

rule), and thus the reported brain state is not the actual brain state, which may invalidate the argument. This objection can be answered as follows. In order that the above argument is valid, the reported brain state is not necessarily the actual brain state, and it can be the brain state that corresponds to the mental state before the report. For example, a person seeing a red spot on a white screen only needs to report her brain state that corresponds to this mental state, and she needs not to report her brain state that corresponds to the actual mental state including the report process. Since the report process is not a physical measurement on the brain state before the report, the laws of physics cannot explain the direct report of the brain state, and thus the contradiction still exists.

The second objection is to deny the validity of the claim (C2). My answer to this objection is as follows. First, more and more experiments show that there is a correspondance between the mental state and the brain state (Koch et al, 2016; Van Gulick, 2022; Wu and Jorge, 2024). For example, a person seeing a red spot corresponds to a certain brain state or neural activities in her brain, while this person seeing a green spot corresponds to another brain state or neural activities in her brain. Next, although these experiments do not show that there are necessary relationships between mental states and physical states, they do show that there are (approximately) regular relationships between these two kinds of states. Third, regular relationships between the mental states and the brain states are enough for the above argument. Once a person learns these regular relationships, she can report her brain state based on her mental state and these relationships, as the argument requires. Finally, even if the claim (C2) is not true, if only physicalism accepts it, the about argument is still a valid argument against physicalism.

The third objection is to deny that the laws of physics entails the claim (C3), namely that the state of a physical system such as our brain can only be measured by another system (usually a particular measuring device) via a physical interaction. One may argue that the state of a physical system can also be measured from the inside. For example, there may exist a physical system that is composed of two subsystems, each of which can measure the other, and the results may also be combined to generate the complete information about the state of the whole system.

However, it can be argued that such a system cannot exist according to the laws of physics. First, for such a system, its two subsystems must be two measuring devices so that each subsystem can measure the state of the other. Two electrons cannot measure each other. In order to measure the state of a system, there must be a particular measuring device which can realize the complex measuring function. Next, and more importantly, the results of these two devices cannot be combined without a third combining

system. But then the output of the combining system cannot contain the complete information about the state of the whole system, which is now composed of three subsystems. In fact, the combining system needs another device to measure its state, and this will be an infinite chain. Therefore, there cannot exist a physical system that can measure its own state and output the complete information about the state according to the laws of physics. Finally, it is also worth noting that even if the above physical system indeed exists, it cannot be our brain. The existing neuroscience experiments show that our brain is not composed of many devices, each of which measures the states of all others.

To sum up, I have argued that the conscious mind does not obey the laws of physics, and thus it is not physical as physicalism claims. If this argument is valid, it will have far-reaching consequences. For example, it will imply that the physical world is not causally closed, and the conscious mind also has distinct causal roles within physics. At the same time, how to unify mind and matter will be a more challenging task for a naturalist.

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