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How is Block's Central Argument against Functionalism?

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Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

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Opinion Article

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ABSTRACT

Block argued against functionalism. The argument was metaphorized by building a normal body but with the brain of a homunculus. A review of the metaphorization exposes that the argument is inadequate to avoid the weakness of the functionalist doctrine.

Keywords: Block; functionalism; homunculi.

1. FUNCTIONALISM

Functionalism, or, machine functionalism, takes the following identity: Given certain sensory inputs, each type of mental states behaves as a disposition which

(1) Acts in certain ways irrelevant of its internal constitution; and,

(2) Is determined by the way it functions, or, the role it plays in the system where it is a part [1].

The doctrine claims that mental states are functional states. The states are defined by their causal roles: (1) Inputs; (2) Causal relations to other functional states; and, (3) Outputs [2].

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Alternatively, it asserts that a mental state is determined by its causal relations to sensory stimulations, other mental states, and behavior [3].

2. BLOCK'S ARGUMENT

Block argued against the theory. His central argument is known as the "Absent *Qualia* Argument" [4]. In Nagel's terms, what he questioned is: "If there is anything which it is like to be the homunculi (*Latin:* little men)-headed system" [5]. The argument proposed that [6]

(1) Machine functionalism says that each mental state (e.g., a qualitative state, i.e., the *quale, Q*) is identical to a machine-table state;
(2) But if there is nothing it is like to be the homunculi-headed system, it cannot be in that qualitative state, even when it has the functionally equivalent machine-table state;
(3) Thus, due to the prima facie doubt about the mentality of the homunculi-headed system, there is the prima facie doubt about that the qualitative state is identical to the machine-table state;
(4) Consequently, there is prima facie doubt about the validity of the kind of functionalism under consideration.

3. METAPHORIZATION

Block's argument was metaphorized by building a normal human body. However, its brain is replaced with the mind of a homunculus. The metaphorization happens in the following two dominant steps [7]:

Step 1: Imaging the skull is a control center. The center includes:

(1) A big bulletin board at the front, on which there is a removable notecard, that is, a card with a letter on it to represent the present *Q* of the system;
(2) A bunch of numbered light, *L*, to simulate environmental causes, other mental states, and behavior; and,
(3) Some buttons homunculi can press on, which are hooked up to the body's motor system. when the buttons are pressed, the body moves accordingly in specific certain ways.

Step 2: There is a machine table to describe functionally the mental states. It characterizes the relations between all *Q* and all *L*. Each homunculus has a job to implement a "row" on the table. For all the rows there are enough homunculi to perform the instructions of what to do next, how to update the state of the system, and which outputs to produce.

In this way, the brainless body can perform just what a normal person wants to do. This is an unrealistic embarrassing result of the functionalist doctrine. It convinced Block to insist that there can be functionally equivalent systems which, nonetheless, do not have the same mentality. As a result, he doubted about the validity of the functionalism, as shown in point (4) of his argument. Interestingly, the same conclusion was also obtained by substituting the homunculi-headed robot system with another human-body functionalistic system [8].

4. INADEQUACY OF THE ARGUMENT

Due to the embarrassment encountered in the metaphorization, Block concluded that any version of functionalism "is guilty of liberalism—classifying systems that lack mentality as having mentality" [9]. However, there appears a basic problem with his mind-related machine table: Are those suggested qualitative states, *qualia*, equipped by the homunculi-headed bodies, effective at all to represent the mental states of consciousness?

This *qualia*-paradigm regards the brain neuronal entity as a physically linear system. It arbitrarily takes it for granted that the conscious process of the mind is simply a collection of distinct objects, while these objects are independent of each other, just as the elements given in the machine table. However, modern scientific development has demonstrated the invalidity of such a linear scenario. Instead, it is exhibited that the mental process is highly nonlinear, living in a neural network where signals of the neurons are interweaved and inseparable [10]. The nonlinearity characterizes the self-organizing consciousness of the prefrontal cortex to express cognitive abilities [11]. The resultant multi-frequency chaotic states of mind are impossible be simplified as functionally structured machine-table states. Both medical measurements and theoretical simulations of EEG brainwave packets [12] proved the inadequacy to employ the linear paradigm for human mental activities.

Fig. 1 presents an example of the EEG waves propagating in a typical brain neuronal system

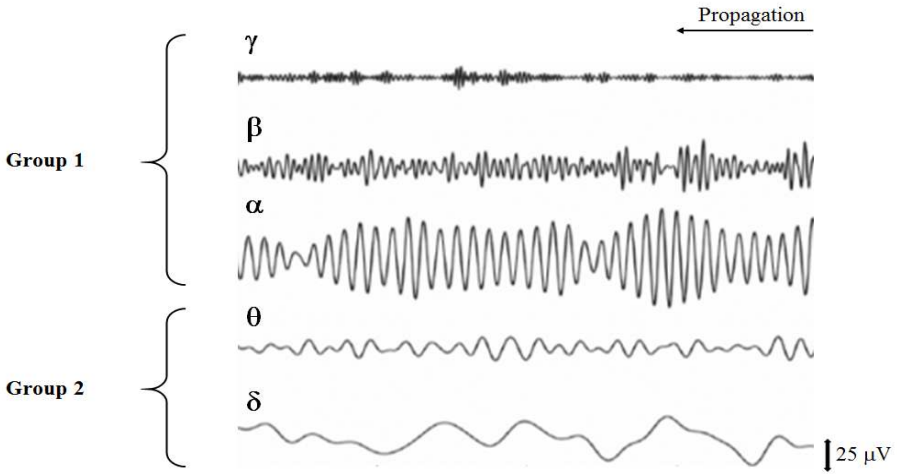

Fig. 1. Nonlinear EEG brainwaves in typical mental states (adapted from Campisi et al. [13])

[13]. A total of five conscious levels of the mind are shown, from the bottom up:

(1) Semiconscious (bottom panel, δ: 0.5-4 Hz at coma or dreamless-sleeping states);
(2) Subconscious (lower middle panel, θ: 4-8 Hz at drowsy, idling, dreaming, or deep-meditation states);
(3) Conscious (middle panel, α: 8-14 Hz at relaxed, reflecting, light-meditation, or visualization states);
(4) Ultra-conscious (upper middle panel, β: 14-30 Hz at perception, alerting, or concentration states); and,
(5) Superconscious (top panel, γ: 30-42 Hz at focused states or religious ecstasy).

The Figure demonstrates that the brainwaves manifest two groups of nonlinear features beyond the linear sinusoidal regime [14]:

Group-1 gives complex stormy waves in the upper three panels, α, β, and γ, the amplitudes of which are highly modulated to give nonlinear wave-envelops [15];

Group-2 presents simple waves in the lower two panels, θ and δ, characterized by the wave packets of hybrid sinusoidal and saw-tooth waveforms [16].

Among all the conscious levels, it is hard to trace any signs of the *Q*-like components in linear systems. Even for the simplest Group 2, the two propagating trains are hardly equivalent to any components in the machine table. Yet, it is allowable to name the waves as the quasilinear ones which are tinted with deformed amplitudes. Thus, human brains are unable to be treated as linear systems. Consequently, Block's *qualia* in his Absent *Qualia* Argument against functionalism cannot behave as a deciding factor to express the equivalent functional activities of the two hypothetical systems of different mentalities. In other words, his argument did not chip away the weakness of functionalism.

5. CONCLUSION

Block made use of a *qualia*-related metaphorization to challenge the functionalist thesis that mental states supervene on physical states. However, conscious process of the mental states is beyond the regime of linear system. The inter-independent mental elements, *qualia*, are inadequate to describe distinctive functional activities. Thus, Block's argument still retained the weakness of the functionalist doctrine.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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8. Ibid., pp.279-281.
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