

Does Consciousness Exist?—In What Sense?

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Abstract This commentary on Barutta et al. (IPBS: Integrative Psychological & Behavioral Science 44:2, 2010) elaborates the authors' ideas from a new angle. The following positions of the authors are presented and analyzed: emergentism, two different languages of the description of the phenomena, and the notion of “efficient causality”. A different approach to the issue of mind-brain interaction is suggested. The key idea of the approach is based not on posing select characteristics which the mind, the brain, or the human consciousness is supposed to have, but on the description of the logic of the activity of this global system, and of the structures that make this characteristics possible to exist.

Keywords Mind-brain interaction · Structure of consciousness · Logic of consciousness' activity

The main goal stated by Barutta et al. (2010) is to present a solution for the eternal problem of mind-body interaction. Authors consider that the key issue here is that of downward causation of higher mental phenomena, i.e. the question of how it is possible for consciousness to have an impact onto the neurophysiological level. It seems obvious that such influence exists. There is no doubt that conscious experience can evoke changes in body activity and, particularly, in the activity of brain. As was mentioned by Barutta et al., countless number of other experiments, including those on biofeedback (Butler 1978), on imagery (Sheikh 2001) can provide further evidence of that impact. But how can consciousness control the

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functioning of physical processes in brain, if those processes themselves are not accessible for consciousness? Or—as Velmans (2002) states it—one is not conscious of one's own brain/body processing, so how could there be conscious control of such processing? Such set-up of the problem is the reverse side of the hard problem posed by Chalmers (1995)—how can the physical processes in brain give rise to subjective experience? In other words, the issue of the bottom-up causation is brought into the picture.

Suggesting a solution of the problem of downward causation, the authors of the article proceed from three basic prerequisites. First of all, their fundamental assumption is the acceptance of the emergentist approach. Secondly, they consider mind-body interaction using different levels of description. And, thirdly, they insist on nonapplicability of the causality principle—understood as the effect of one entity on another. In our case these entities are the mind and the brain—as this contrast is used by contemporary scientists. The authors insist on the impossibility of using the notion of efficient causality when we talk about two principally different levels of description of the very same phenomenon. It is precisely this misunderstanding by scientists that explains to us the “illusion of efficient causality” between the mind and the brain. Indeed, we observe only correlation between events happening in mind and events happening in brain—which might not surprise us—just because these events are only two levels of description! Pragmatic emergentism, posed in such a way, removes, from the point of authors' view, the psychophysiological problem. We will here sequentially analyze the assumptions and prerequisites suggested by the authors, and also present our view on the problem in question.

Emergentism

In their article the authors suggest the classical version of emergent approach, which explains the appearance of the system which could not have been explained or predicted on the assumption of former initial conditions. Therefore, consciousness is not only “brain function”, but is also “high-level” (systemic, emergent) function, which appears only on the specific level of organization—as a product of complex interaction of the elements (atoms, molecules, neurons), which, taken alone, don't have any “psychical” properties. The authors give previously used examples—of a salt (NaCl), which is not toxic in itself—neither are its components Na or CL—but is also the product of reaction involving two compounds that are toxic to humans. There is also an example of a cell which is a macro-property with respect to the organelles it contains, but is a basal property relative to the tissue to which it belongs: water supervenes on molecules of hydrogen and oxygen, as the mind supervenes on a neurophysiological substrate.

In our opinion, the main advantage of the given approach is an accent on the fact that brain is an indispensable condition for emergence of mind and consciousness, but must not be afterwards considered as an explanation of their activity. Barutta et al. (2010) also stress this advantage of emergentism—see “the fact that the global properties depend on their basal properties is not contradictory with the insufficient capability of the latter to explain the macro properties”. However, the next step, which seems to be quite obvious, unfortunately, is not done. This step implies that

only after defining the functions executing by consciousness we can search for those neurophysiological structures that provide the performance of these functions.

However, both the founding fathers of emergent approach and authors of the target article confined themselves to mentioning just several characteristics of the psyche, mind and consciousness. They neither fully define what those entities are, nor even try to do that, coming to nothing more than enumerating some properties of those entities—intentionality, qualia etc. There is a difference between examples with molecule and atoms compounding it and mind-brain interactions. We all know quite well what water is (as we know what cell is). Of course we can quite unambiguously define brain. But we don't know quite well what we are talking about when we use terms “mind” and “consciousness”. This makes it difficult to define global level (if to use the authors' term). Is mind an emergent property of the whole brain? Or is it the property of one of its substructures (no matter anatomical or functional)? Is consciousness inherent in any brain or only in human brain? Or could mind be the emergent property of the whole organism, and not only of the brain? Unfortunately, the authors don't comment on these traditional critics of the emergent approach.

The Problem with Emergent Properties—Description of What is Not Yet

What is consciousness? Searle poses that consciousness and experiences of consciousness are the same thing: “consciousness only exists if it is experienced as such” (Searle 2007, p.213). But for other emergent properties (water, salt, hardness etc) there is no such problem. The postulated transition from micro properties of brain to macro property of mind can't explain how brain, from a third-person view, can have at the same time the first-person view in it (Velmans 2009). There is no definition of macro properties. Brain, as Barutta et al. (2010) affirm, can be viewed as micro property, causing consciousness, but can be also viewed in itself as macro property of different level. But we can comparatively easy make a physical reduction from macro properties of brain to its micro properties, as we can do it from macro properties of “water” to its micro properties (oxygen and hydrogen). But in the case of consciousness such a reduction is not possible.

The solution suggested by the authors somehow reminds (in present version) the way medieval scholastic was reasoning. If one were to recollect the ironic scene in a play by Molière—why does opium cause dreams? Doctors, described in Molière's plays, answer: because it has a property of hypnotic action. Just compare: Why does brain has consciousness, intentionality or qualia? It's because the brain has specific emergent properties. In its own the position of Molière's doctors is not meaningless: by saying this they postulate that it is exactly opium and not any other medicine that evoke dream. Equally the statement that consciousness is a property of brain—is an important statement. But, at the same time, the similarity somehow frightens.

Two Levels of Description

Barutta et al. (2010) claim that mental events exist simultaneously in physical and ontological sense, but they must be described only by means of one language of

description, i.e. either from psychological, or from social, or from neurological point of view. But absolute reduction to the sole level of description is impossible. In contemporary philosophy of consciousness such an approach is developed by Velmans (2009). But acceptance of such approach evokes more questions than answers, because given solution looks like this: the problem of mind and brain interaction is impossible to solve, for there is no such a problem.

Yet—first of all—it’s incomprehensible, how brain can be a cause of the emergence of consciousness and at the same time be just another language of the description of that very consciousness. Secondly, postulation of the wholeness of the studied phenomenon and assumption of neurological and psychological levels’ isomorphism force one to say that functions of mind and brain are also identical. Should we therefore say that neurophysiological laws and psychological laws are isomorphic? It sounds strange. Thirdly, rejection of ontological dualism (there is body and there is soul) turns out to be specific property dualism (there is one whole entity, but it has neurological properties, which can be described from the third-person point of view, and it has mental properties, which can be described from the first-person point of view; moreover, the integration of description languages is impossible. Fourthly, if mind and brain represent the one whole entity, then, as authors do stress, certain mental phenomenon must be identified with certain neurophysiological substratum (and this statement sounds very close to the identity theory (Pepper 1960; Libet 2003)). And in this case we are entrapped: there must be observed one-to-one correlation between two levels of description. But this, probably, is not always true. It is not also true that by analyzing neurophysiological data we will be always able to forecast what will be happening in consciousness, but correlation must give us possibility to predict events. Bashful, but impressively frequent successes in this field must not force us to forget that this task can’t be fully resolved unless it is resolved in general. Why, for example, we observe mistakes performed by consciousness? Experimental investigations, undertaken during last decades in the sphere of cognitive science and cognitive psychology, let us say that limitations put over consciousness can’t be explained by the means of physiological causes. Experimental results have shown that even in case when presented information does not get into consciousness, it nevertheless can be successfully processed by brain. It, possibly, means that causes of inaccessibility of processed information to consciousness don’t correspond with the activity of brain, but are predetermined by the activity of consciousness. Thus, there is a consequence that logic of brain performance and logic of consciousness performance are different.

Barutta et al. (2010) admit that it is impossible and even not reasonable to establish strictly psycho-physiological laws, connecting two levels, because different mental events can origin from different neurobiological substratum. Authors find the way out from this paradox in non-applicability of “efficient causality” between two levels of describing the one whole phenomenon. They affirm that brain-mind correlation is the correlation of the “whole-part” kind. In such cases, as the authors suppose, one should consider influence of local properties on global properties, and global properties on local ones, as a part of the whole phenomenon. But this statement is declarative and doesn’t give us any chance to predict particular experimental data.

The Structure and the Logics of Consciousness

The main idea of the given Commentaries' authors is following: mental activity is, undoubtedly, provided by neurophysiological mechanisms, but the latter do not define the structure and logic of mental activity. Neurophysiologists will never find consciousness unless they understand what exactly they are trying to find. Only knowledge of consciousness performances logic will afford us to find the neurophysiological mechanisms by which it is provided. But logic of consciousness' performance, or mind logic, or mental activity logic is not discussed. In cognitive psychology consciousness is traditionally connected with cognition, particularly, with processing of incoming information. The consciousness is defined as some "central executive", which has limited capacities (see e.g. Baars 2007). But if so, one should explain what kind of incoming information should become conscious and why. The more cognitive psychology was dealing with this issue, the clearer it was that practically all processing of information can be done without consciousness' participation, i.e. unconsciously (starting from spatial identification of signal (Posner and Snyder 1975) to semantic processing (Neely 1977), creative solutions, taking decisions in social interaction). Sometimes one can become aware of some part of the processed information, but this is, firstly, the result of processing, and not processing itself. And, secondly, we still can't understand the circumstances in which awareness takes place.

What do we really know about consciousness? We are absolutely sure that there are some representations of reality in the contents of consciousness. And, as it is traditionally affirmed, we must compare subjective images with real ones, for to behave in the world and cognize it. But that results in fundamental epistemological problem (as discussed by many from the times of John Locke to those of Bertrand Russell—it's impossible to compare something that is in consciousness with something that is not in consciousness, and, therefore, it is impossible to differentiate "seeming" reality from reality. If the structure of mind is homogeneous, then there is no way out from the discussed impasse. Only if the structures of mind are heterogeneous, if there are independent cognitive structures or, let us say, kinds of "cognitive loops", then checking of incoming data is possible. It is postulated in modern philosophy of science: in order to test of a hypothesis in experience one should use independent checking (see Fig. 1).

Thus, for the given case, for testing of hypothesis put forward, three conditions must be fulfilled:

1. Parallel activity of "cognitive loops";
2. Their independency from each other;
3. The existence of "matching block" which sends feedback to "cognition blocks" in case of matching or mismatching of results of their activity.

The qualitative signal comes as feedback from "matching block" to "cognition loops": this signal is positive in case of results matching and negative in case of mismatching. Thus this signal becomes the criterion of effectiveness for the whole cognizing system—if it's positive in its nature it means that the image of reality is very close to reality). This signal becomes subjectively experienced.

As soon as criterion appears, the system immediately adjusts to the maximum effectiveness according to this criterion. For example, in Russia in the 1920^s the

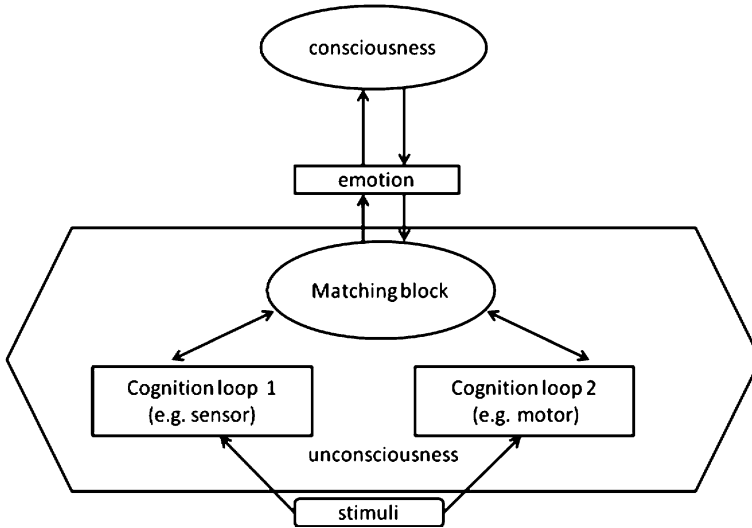


Fig. 1 Scheme of independent checking of cognitive activity' results

criteria by which it was possible to define the firemen's salary were discussed. It was decided to define the salary according to the time fireman spent on fire. As a result firemen extinguished fire slower. And there are other similar examples. Consciousness, according to our opinion, is that very mechanism, which provides the activity of the system for achievement the best results according to the criteria (Allakhverdiv 2009). For example, consciousness can vary its matching criteria for accuracy. Thus consciousness is capable of differentiating indistinguishable states and can identify nonidentity states.

Consciousness can be claimed to construct our guesses about the world, checks them, comparing them with the results of independent "cognition blocks" activity, and tries its best to confirm them. The world for consciousness looks like the determined one, and therefore, predictable. In essence, all organization of cognition occurs in two different ways—through the inductive process (exercising the information processing in bottom-up manner) and through deduction (constructing images and verifying them in experience). In modern cognitive science these two ways give rise to two "camps" of researchers the adherents of which counter each other. The adherents of the first approach suppose that direct perception is the foundation of our knowledge, mankind is passive and reflects only that images which are presented by the world (this conception is supported by object-centered theories of perception). The adherents of the second approach consider that cognition occurs indirectly, information about reality is originally incomplete, thus it is necessary to verify it, supplement it with new information. The *psyche* is in any case richer than the immediately perceived world—as is demonstrated by subject-centered theories of perception). Both approaches are supported with experimental data. In our opinion, the existence of such two approaches reflects the real situation in cognition—the existence of inductive and deductive ways of cognizing the world.

The automatic activity of “cognition blocks” represents somehow peculiar ideal cognizing system—one that is meant for maximally adequate reflection of the reality. Consciousness may not intervene in brain activity directly, but can intervene in the activity of this automatic system. Imitative activity of consciousness seems to be seen in such extreme cases when activity of automatic cognizing systems is for some reasons impeded or absent. The investigations of sensory and perceptual deprivation (see, e.g. Zubek 1973, for review) are widely known examples of such situations. In case when external action is practically absent, and does not give any information from the environment, subjects after some time start suffering from hallucinations. Those hallucinations represent consciousness’ attempts to suppose what is going on in reality; but as there is no information with which it can be compared or matched, such false information about the reality considered to be real.

The described logic of the activity of the mind seems to be able to throw light on the issue of consciousness also in these cases when it is “making mistakes”. In reality, of course, it doesn’t make mistakes. Using the fixed notion of “mistake” one could say that an investigator, presenting some information for subject to process (conducting an experiment), observe the situation from the third-person position—it seems to him that the goal which he gives in instruction to the subject or which he implies, is perceived by consciousness directly. Afterwards, investigator is surprised, observing mistakes in subjects’ performance. But from the point of view of consciousness (or the first-person view) the goal can be absolutely different. And what seems to us being a mistake represents a consciousness’ logical answer to the discovered goal. Possibly, that is an explanation to the fact that some mistakes executed by the subject are characterized with high level of confidence in correctness of the given answer.

This logic of consciousness affords to draw empirically verifiable consequences, search for neurophysiological mechanisms, which provide the activity of mind and consciousness. The only aim we had was to demonstrate the possibility of different approach to mind/brain interaction, which is founded not on positing special characteristics that mind, brain, consciousness etc have, but on description of this global system’s logic of activity, and description of the structures that make this characteristics possible to appear.

References

- Allakhverdov, V. (2009). The role of consciousness in human cognitive activity. In V. P. Zinchenko & V. Petrenko (Eds.), *Psychology in Russia: State of the art. Scientific yearbook* (pp. 124–140). Moscow: Russian Psychological Society.
- Baars, B. J. (2007). The global workspace theory of consciousness. In M. Velmans & S. Schneider (Eds.), *The Blackwell companion to consciousness* (pp. 236–246). Malden: Blackwell.
- Barutta, J., Gleichgerricht, E., Cornejo, C., & Ibañez, A. (2010). Neurodynamics of mind: the arrow illusion of conscious intentionality as downward causation. *IPBS: Integrative Psychological & Behavioral Science*, 44, 2. doi:10.1007/s12124-010-9117-8.
- Butler, F. (1978). *Biofeedback: A survey of the literature*. New York: IFI/Plenum Data Company.
- Chalmers, D. (1995). Facing up to the problem of consciousness. *Journal of Consciousness Studies*, 2(3), 200–219.
- Libet, B. (2003). Can conscious experience affect brain activity? *Journal of Conscious Studies*, 10(12), 24–28.

- Neely, J. H. (1977). Semantic priming and retrieval from lexical memory. *Journal of Experimental Psychology: General*, *106*, 226–254.
- Pepper, S. C. (1960). A neural identity theory of mind. In S. Hook (Ed.), *Dimensions of mind*. New York: New York University Press.
- Posner, M. I., & Snyder, C. R. (1975). Attention and cognitive control. In R. L. Solso (Ed.), *Information processing and cognition*. Potomac, MD: Erlbaum.
- Searle, J. (2007). Biological naturalism. In M. Velmans & S. Schneider (Eds.), *The Blackwell Companion to Consciousness* (pp. 325–334). Malden: Blackwell.
- Sheikh, A. A. (Ed.). (2001). *Healing images: The role of imagination in the healing process*. Amityville, New York: Baywood Publishing Company.
- Velmans, M. (2002). How could conscious experiences affect brains? *Journal of Consciousness Studies*, *9* (11), 3–29.
- Velmans, M. (2009). *Understanding consciousness*. London: Routledge.
- Zubek, J. P. (1973). Behavioral and physiological effects of prolonged sensory and perceptual deprivation: A review. In J. Rasmussen (Ed.), *Man in isolation and confinement* (pp. 9–85). Chicago: Aldine Pub. Co.

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