

# Review of: "The Emergence of Consciousness in a Physical Universe"

Wieslaw Galus<sup>1</sup>

<sup>1</sup> Institute of Plasma Physics and Laser Microfusion

**Potential competing interests:** No potential competing interests to declare.

This work is a misunderstanding, probably resulting from a misunderstanding of what consciousness is. Perhaps the presented article has some value as a description of information processing in the brain and the exchange of information between objects. The conditions for processing information into the description of objects in the broad sense, formulated in the article, may lead to the characterization of the propositional aspect of awareness and concern the so-called access consciousness.

This area is penetrated deeply enough by artificial intelligence researchers, and the author's assumptions regarding the relationship between perception, information, recognition, the model of reality, decision, and communication are fulfilled by AI systems based on deep learning or large linguistic models. There are no fundamental difficulties or mysteries leading towards the specific dualism or mystical metaphysics mentioned at the beginning of the article.

The author writes on page 23: "The subject matter of this article is to deal with the semantics as objects of discussion; therefore, it may lead to a confusion whether a term is used to convey the linguistic meaning to a reader, or it is used to refer to the object represented by a state of the system." Therefore, it is unclear why he tries to go beyond the framework of specialized topics and generalize the conclusions to the description of consciousness. There is still a long way from the physical or neural states of the brain to consciousness.

Quite rightly, the author tries to formulate a new definition of consciousness for the needs of his model. Already in the introduction, the author states that: "... within a structured or integrated semantics, the relation that one specific object bears with other objects has the properties that we have come to refer to as consciousness." This definition is invalid. Object relations do in some sense form a component of the self. However, this is a propositional component describing objective relations of perceived objects and does not exhaust the hallmarks of phenomenal consciousness. It is arguable that the way structured semantics is represented suggests that the unitary self-system represented is the carrier of the properties we identify with consciousness. The author even identifies this unified system with the self but does not write what specific properties he identifies with consciousness.

The functional definition of consciousness given in section 1.2 can at best refer to access consciousness. It is impossible to create a model of advanced consciousness in living beings based on this definition. The statement, "The third missing element is a conceptual framework for the self to be a part of a structured semantics like any other objects the self is said to be conscious of. That is, it is the represented semantics of a relation that expresses the self as an observer of objects

and controller of actions. Moreover, by virtue of being a causal correlate of a state, represented semantics is correlatable with the consequence of the state. Therefore, the problem of constructing the description of consciousness reduces to the problem of representing the semantics of self and its relation to the objects of experience" (my emphasis), really fits at best an early form of behaviorism, not the modern theories of consciousness currently discussed among neuropsychologists.

In section 4.4, entitled "The control of action, central to the emergence of consciousness," the author postulates that decision-making "... naturally requires a representation of a unified self, to which all wants, desires, and contextual details can be mapped, that functionally serves as a comparator of the results of following different action pathways, while allowing the optimal or dominant requirement (goal) to be satisfied." This expectation is by no means natural, and what is more, it is not fulfilled, because, as Lamme's Recurrent Processing Theory shows, spontaneous, immediate actions take place automatically, without the participation of consciousness. Thus, action control cannot be central to the emergence of consciousness.

Equally unjustified is the author's statement at the beginning of section 5: "For the first time, a framework for the emergence of consciousness is constructed from natural representations of information based on the causal function in nature, which does not leave any insurmountable conceptual gaps and voids."

All the more, the exaggerated declaration, "For example, expressions like, 'What is consciousness?', 'How am I conscious?', and, 'There is a hard problem of consciousness,' become constructible," does not bring us closer to solving the famous hard problem of consciousness, just like the attempt to describe the emergence of the concept of blueness does not explain the quale of the color blue. Building a neural representation of the blue sky does not explain the first-person sensory experience of this quale. Even more bizarre is the statement: "The character of blueness is an abstract semantics relating to 'r-self as observer' emerging via a disjunction of relations, such as the contrast relation among reflection or transmission of light in different wavelengths, ..." This and further considerations in this section confirm the lack of understanding of what qualia and phenomenal consciousness are.

The author argues, for example, that object relations form a component of the self. But this is a propositional component describing objective relations of perceived objects and does not exhaust the hallmarks of phenomenal consciousness. The author does not explain how, for example, the feeling of jealousy or shame manifests itself in the material world and how these feelings gain causal power, although psychology describes them propositionally and proves that they have this power. All the more so because the broad definition of "objects" also allows us to include these exemplary feelings.

The lack of understanding of what qualia are is also indicated by the statement: The observed features of objects, such as shape, size, color, roundness, relative placement, etc., are undeniably apparent semantics; therefore, they must be undeniably representable via natural processes. It is not entirely clear what the author considers a natural process. This is a false thesis even if we consider relationships between material objects to be natural processes. For example, if we had the ability to see in the ultraviolet, like some insects, we still couldn't imagine how we would perceive and feel it, even if we could name it "ultraviolet color" and pinpoint the locations of the areas where it might appear.

And further: "It is noted above that the character of blueness is an abstract semantics relating to 'r-self as observer' emerging via a disjunction of relations, such as the contrast relation among reflection or transmission of light in different wavelengths." It is impossible to agree with these statements. Feeling blueness is not abstract semantics. This should not be postulated when the formation of qualia is well described based on the reductive model of the conscious mind, and a deep justification for the theory of the identity of mental states of mind and neuronal brain states has been published.

Further on, the author also writes: "The formalism quantifies information processing resulting from an interaction, which in turn constitutes an intrinsic or subjective correlate of the state", without explaining how the formalism quantifying information processing can constitute a subjectively felt correlate of the state. He uses the words intrinsic and subjective interchangeably in an unauthorized way.

An entire section is devoted to the critical role of language in shaping consciousness. However, a feature of phenomenal consciousness is the inability to propositionally describe subjective sensory experiences in symbolic language. How to convey the feeling of delight when we hear the sounds of angelic choirs in our imagination? How can you describe what it's like to feel repulsed by the smell of rotting meat or feel the slipperiness of wet soap?

The hypothesis of gaining consciousness by creating semantic neural representations presented in the article, to which the author attributes mental properties, is completely wrong. However, the analytical value of the article cannot be denied in the field of information processing in the processes of perception, recognition, representation building, action management, and other attributes of access awareness. The ambitious goal of identifying ontology and epistemology thanks to one information theory was not achieved because it could not be achieved. Nevertheless, many of the author's arguments deserve the attention of specialists. The article cannot be published in its current form because it misleads readers, from the title, through all sections, to the final conclusions. I suggest the author abandon the too far-reaching postulate of a comprehensive explanation of the phenomenon of consciousness and instead focus on the aspects in which the presented IT structures are essential.