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Decoding Cognitive Consciousness: An Object-Oriented Cognition Approach

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Abstract

Cognitive consciousness, the awareness of self and environment through mental processes, remains a central enigma in cognitive science and philosophy. This paper explores cognitive consciousness through the lens of Object-Oriented Cognition, a framework that integrates diverse cognitive domains and provides conceptual tools for addressing epistemological challenges. Two foundational principles are emphasized: first, consciousness inherently unfolds within a temporal context, and second, it is inseparable from the physical organism that houses cognition. Within this framework, cognitive consciousness is not a cognitive object or event but a fundamental substrate enabling the formation and experience of cognitive objects. This substrate facilitates the connection between incoming cognitive stimuli and value functions—mechanisms by which a living being allocates and utilizes internal and external resources. The paper highlights that without the organismal connection, such cognitive processing and meaningful cognitive events cannot occur. Cognitive consciousness, therefore, acts as a dynamic interface that links cognition with physiological and environmental realities, ensuring the functionality and coherence of cognitive behavior. By emphasizing the indispensability of this substrate for the emergence of cognitive events, this research provides a new perspective on the structural role of consciousness in cognition. Although this approach sheds light on the nature of cognitive consciousness, it also identifies open questions, particularly regarding the mechanisms sustaining this substrate and their relation to neural processes—issues that invite further inquiry within the Object-Oriented Cognition framework.

Keywords: Cognitive Consciousness, Object-Oriented Cognition, Value Functions, Physical Organism, Cognitive Substrate

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Introduction

The complex and multifaceted concept of "cognitive consciousness," referring to a living being's awareness of itself and its surrounding environment through mental processes, has consistently been one of the most enigmatic topics in philosophy and cognitive sciences. The endeavor to understand the nature and conditions for the realization of this cognitive phenomenon has presented fundamental challenges to researchers. Among the various perspectives, two core propositions play a pivotal role in elucidating cognitive consciousness. First, it posits the inseparable link between consciousness and the concept of time; in other words, conscious experience invariably unfolds within the context of time, and the perception of changes and the sequence of events is an integral part of it.

Second, it considers the connection of cognition to a physical organism as a prerequisite for the realization of cognitive consciousness; cognitive processes only lead to consciousness when manifested in a living being with a specific physical structure and function, and without this connection, the notion of cognitive consciousness becomes meaningless. This paper delves deeper into the mysterious entity of cognitive consciousness in the cognition of living beings, drawing upon the fundamental concepts presented in the theory of Object-Oriented Cognition.

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The primary aim of this research is to provide a clear definition of this concept within the framework of Object-Oriented Cognition and to attempt to resolve existing ambiguities in the epistemology of consciousness. Subsequently, after introducing the foundations of Object-Oriented Cognition, we will elaborate on cognitive consciousness as a substrate for the formation of cognitive objects.

Foundations of Object-Oriented Cognition

The theory of Object-Oriented Cognition, which forms the central approach of the articles published in this electronic journal, endeavors to integrate all branches of cognitive science within a unified framework (Al-Nuaimi et al., 2020). By offering novel perspectives in the fields of artificial intelligence, humanities, and semiconductor physics, this theory claims to initiate fundamental scientific transformations. One of its objectives is to provide precise conceptual tools for deciphering open questions in the realm of epistemology (Becker & Niehaves, 2007). Topics such as the "difference between belief and opinion" and the "integration of various branches of cognitive science," which have been previously discussed in this journal, exemplify this effort. In the same vein, clearly defining the concept of "consciousness" as a cognitive entity remains a significant challenge for scientists across different branches of cognitive science. This paper will utilize the key concepts of Object-Oriented Cognition to offer a distinct and clear definition of this entity (Détienne, 1997).

Cognitive Consciousness as the Substrate of Cognitive Objects in the Cognition of Living Beings

As previously mentioned, the formation of a cognitive object necessitates the entry of a stimulus (internal or external) into the cognitive system. The connection of the content of this stimulus to a collection of resources within cognition, in the form of value functions, and the attachment of these functions to the content, results in the creation of a cognitive object; this process is termed a cognitive event (Geary & Huffman, 2002). Based on this definition, it is evident that the occurrence of a cognitive event requires the existence of life and the connection of the living being's cognition to its physical organism. According to Langacker (2011), Severing this connection would undoubtedly render the creation of cognitive events and the resulting cognitive objects and propositions meaningless. Therefore, establishing and maintaining the connection between a living being's cognition and its physical organism is a prerequisite for the occurrence of cognitive events and their consequences (Keijzer, 2021).

Within the framework of Object-Oriented Cognition, cognitive consciousness refers to the set of factors that lead to the creation and maintenance of the connection between a living being's cognition and its physical organism (Kjellman, 2002). Accordingly, the entity of "cognitive consciousness" acts as a substrate that facilitates the connection of the content of a cognitive stimulus to the value functions present in the living being's cognition. Without this substrate, the formation of any cognitive object within the cognition of a living being would be impossible (Van et al., 2008). It is important to note that this substrate, by itself, cannot be considered a cognitive object or event, but rather a fundamental cognitive entity without which the existence of any other cognitive entity would be meaningless (Kaplan, 2012). Cognitive consciousness can be likened to an operating system in a computer, which is not an application program itself but provides the platform for running applications.

Cognitive Consciousness and Physical Value Functions

Based on the definition provided for cognitive consciousness, cognitive value functions cannot be considered equivalent to it (Tononi, 2004). The connection of these functions to the content of the stimulus proposition entering the living being's cognition leads to the creation of

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cognitive objects. These functions determine how the living being's cognitive system allocates and consumes resources (Lieder & Griffiths, 2020). In the process of resource consumption, the content of the cognitive object containing these functions utilizes them and involves them in the creation of cognitive value. In living beings, a portion of the consumed resources is present within their physical organism, mediated by a group of these value functions (Gutiérrez et al., 2003).

In other words, some of these value functions are capable of obtaining all or part of their value inputs from the living being's physical organism and even the physical environment outside of it (Goulder & Kennedy, 2011). Obviously, the cognition of a living being in whose cognitive objects these value functions operate must be connected to its physical organism, and that organism must be alive. Therefore, it can be concluded that the existence of cognitive consciousness is a prerequisite for the possibility of connecting the value functions of a cognitive object in a living being's cognition to the organism and/or the physical environment in which it is situated (Ule, 2015). For instance, value functions associated with physiological needs like hunger activate cognitive stimuli related to the search for food, and this activation gains meaning within the substrate of cognitive consciousness and the connection to the physical organism (Wright & Panksepp, 2012).

Conclusion

In this paper, relying on the two fundamental principles of the link between cognitive consciousness and time, and its connection to the physical organism, and by utilizing the key concepts of Object-Oriented Cognition, an attempt has been made to offer a novel definition of this complex concept. According to this approach, cognitive consciousness is considered not an independent cognitive object or event, but rather a dynamic and essential substrate that enables the interaction of cognitive stimuli with the value functions present in the living being's cognition. This substrate, which is maintained through a set of factors that ensure the connection of cognition to the physical organism, plays a vital role in the formation and experience of cognitive events.

It has also been shown that cognitive consciousness is a prerequisite for connecting cognitive value functions to the resources available in the physical organism and its surrounding environment, a condition that enables the survival and effective interaction of the living being with the world. Despite these efforts, the precise nature and mechanisms of action of cognitive consciousness still require further investigation. Object-Oriented Cognition, by providing a coherent framework, opens new perspectives for understanding this remarkable phenomenon, and it is hoped that future research, by delving deeper into these concepts, will take more effective steps in deciphering this fundamental entity in the cognition of living beings. A more detailed examination of the nature of the "factors" constituting the substrate of cognitive consciousness and how they interact with neural structures and cognitive processes could pave new avenues for future research in this field.

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