Review of: "Growing Confidence and Remaining Uncertainty About Animal Consciousness"

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Summary

This article provides an overview of the current state of animal consciousness research. The author delineates, on the one hand, the main aspects of animal consciousness that receive a broad agreement in the scientific community, and, on the other hand, the topics that are still poorly known and under debate.

The paper is overall well-written and provides a useful summary of different viewpoints in the heated debate of consciousness. However, there are some concerns with respect to the choice of some positions and viewpoints mentioned in the paper and their degree of agreement and popularity.

Major comments

1. The definition of consciousness used in the article is “the process by which an animal has perceptual and affective experience or feelings, arising from the material substrate of a nervous system” (last sentence of the section “The Definitional Problem”). On page 4, it is reported that having a sense of self is a broadly agreed central feature of this primary consciousness. However, other authors consider self-consciousness as another type or “dimension” of the phenomenology of consciousness, rather than an intrinsic feature of any subjective experience (see Birch et al., 2020). Therefore, I suggest including these alternative points of view.
2. At point 3 of the section “Other features favored by some authors,” global accessibility and broadcast are mentioned as another aspect of the ontological issues of consciousness. I rather consider this as part of one of the main theories of consciousness (GNWT; already mentioned in the section “Neurological Correlates of Consciousness (NCCs)”). It describes the neural mechanisms that give rise to conscious access rather than the phenomenological features of the conscious experience.
3. The section “Requisite Biological Substrate” (p. 4) is about the neural substrates required for the emergence of consciousness and belongs to the first part of the article, where broadly accepted aspects of consciousness research are presented. Further on, the Neural correlates of consciousness are presented as one of the main remaining uncertainties (p.7-8). I find this a contradiction. In the former section, it is claimed that, according to some authors, activity in the reticular formation is involved in wakefulness in mammals; moreover, other authors claim that sensory consciousness arises from hierarchical brain structures with at least four levels. These are also debated and not

broadly accepted viewpoints, as not all theories of consciousness consider these requirements necessary.

4. The Integrated Information Theory (IIT) is, to date, one of the most popular and debated theories of consciousness (e.g., see Melloni et al., 2023; Seth & Bayne, 2022). However, it is not present in the section on the Neurological Correlates of Consciousness (NCCs). I would suggest mentioning it. If it is discarded for a reason, I would recommend mentioning the reason behind it.
5. According to the author, one of the remaining uncertainties of consciousness regards the monitoring mechanisms of consciousness (p. 10), i.e., the 'witness' in the brain that focuses only on those neural processes involved in the conscious experience in contrast to the wealth of concurrent unconscious activity. I think this is not necessarily an unresolved issue. For instance, the GNWT posits that conscious access occurs when the signal from local neural networks is 'ignited' and widely broadcast throughout the cortex. In this scenario, the broadcasting itself is the conscious experience, thus no Cartesian Theater is required. I would then suggest mentioning that there are also such explanations to get rid of the 'witness' issue.
6. A final suggestion, of which the author should decide to do it or leave it: Looking back 20 years, an astonishing change in the scientific discussion on consciousness becomes visible. While 20 years ago, many scientists were skeptical if any animal outside the human realm has consciousness (and if so, then only great apes), we currently discuss consciousness in invertebrates. Did we collect such strong comparative data on consciousness that forced this shift? Or were people less and less convinced by the philosophical arguments but increasingly trusted neuroscientific explanations? The latter can easily accommodate the idea of consciousness as a widespread phenomenon. Would it be worth discussing this cultural shift in a journal like Qeios?

Bibliography

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