

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

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This paper gives a good overview of prior (mainly theoretical) research related to consciousness, and in particular, animal consciousness. The manuscript seems useful; I would certainly use this paper when looking for certain theories of consciousness or papers related to specific issues relative to animal consciousness. The paper is well-written and easy to understand. However, the “elements of broad agreement about the current state of animal consciousness research” offered by the author seem to be simple conjecture that a few people seem to agree about but are impossible to verify or effectively refute without an agreed-upon objective measure or criteria of consciousness. Without any way to test these claims, they remain in the realm of faith rather than science. Below are a few thoughts and suggestions that might help improve the manuscript:

- The author notes that the sense of self „must have emerged in the course of evolution when an organism gained the ability to distinguish between external stimuli (“What is happening out there”) and internally generated feelings (“What is happening to me”). I think this language is too strong. In reality, no one knows when the sense of self emerged. According to some researchers, this is mainly a cultural construct rather than an evolutionary one.
- Similarly, this is not trivial: “Consciousness became necessary especially once animals started moving about, in order to solve the logistical problems of decision making while in motion.” It is not clear why feeling/qualia is necessary for motion or problem solving.
- “Among invertebrates, plausible evidence for cognition complex enough to imply consciousness has been reported for insects.” This section indicates that the author thinks of consciousness as merely a gradient on the cognition spectrum. I don’t think this is a standard view on consciousness.
- It would be good if the author gave more insight into why the author and others think that these particular types of animals have conscious experiences that would fit the definition provided above: “the process by which an animal has perceptual and affective experience or feelings, arising from the material substrate of a nervous system.”
- The author writes that “The time may come when components of machines may serve as well as neurons for the generation of consciousness, but for now the only substrates for consciousness of which we can be certain are the complex nervous systems of animals.” This paper does not provide any strong argument why we should be certain of the involvement of complex nervous systems of animals as a substrate of consciousness. I don’t see how we can be certain of conscious experiences (“feelings”) of anyone but ourselves. There doesn’t seem to be any objective way of measuring or ascertaining that a system has consciousness. So why are we any more certain of the involvement of animal nervous systems in consciousness than that of mechanical parts manufactured by humans, or simulated in a

digital environment?

- In their conclusion, the author proposes that “The experience of being conscious entails, at a minimum, (1) being aware and capable of focusing attention, (2) perceiving reality in a unified and coherent manner, (3) distinguishing qualitative details and variations in the content of what is being experienced, (4) being able to initiate mental imagery and volitional activity, and (5) having a sense of self. Beyond this baseline of features that all conscious animals experience, some must also perceive temporal depth, emotion, a sense of place, and be capable of perceptual infilling, mental causation, and value attribution.

This suggests that

- a sleeping/dreaming person has no conscious experiences because it precludes (1)
- people with certain mental disorders, e.g., dissociation or psychotic illnesses, do not have conscious experiences because it precludes (2)
- people with aphantasia have no consciousness because it precludes (4)
- people in certain meditative states, or under the effect of certain drugs that dissolve the sense of self, are not conscious because these preclude (5)

So to me, this list of minimal features of consciousness seems hard to defend.

- I don’t see how we can distinguish between people having and not having consciousness (e.g., people with locked-in syndrome), let alone if any animals have consciousness. So I am not convinced about this statement either: “Animal consciousness is implemented by complex nervous systems that process information through neural circuits encompassing at least three hierarchical levels.” Without any objective criteria for consciousness, this is just a conjecture. The statement about the evolutionary background of consciousness is even less stable.