Review of: "The Evolution of Consciousness Theories"

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Review of The Evolution of Consciousness

Ashkan Farhadi's review, "The Evolution of Consciousness," starts with a definition of consciousness: "Consciousness is usually perceived as a state of being aware of the environment as well as self." A state of being aware seems like a synonym for consciousness rather than a definition. Following that seemingly tautological definition, Dr. Farhadi proceeds to a list and brief description of the major theories of consciousness. This list is helpful, and it contains most, though not all, of the prevalent theories. He then attempts to apply these theories to artificial intelligence (AI).

In terms of definitions, I like the concept of a combination of both internal bodily sensations and the external world as a necessary substrate for consciousness. This idea was first put forward, to my knowledge, by the neuroscientist Paul MacLean. I wonder if this concept can be applied to artificial intelligence, even theoretically. What type of awareness of self or internal sensations does a computer possess? I would side with Alan Turing, as quoted in the article, who did not believe computers have such an awareness of self. With this major question, I leave the issue of whether computers or AI can be conscious, at least in the way that humans are.

The author seems to bypass this concern by Descartes's concept "I think, therefore I am." I can accept existence based on thinking, but full consciousness requires more than just mental computations. Clearly, computers can process information, even "think." This does not necessarily make them conscious.

I begin my own consideration of consciousness from the perspective of a clinical neurologist. We know a considerable amount about the neurological substrates necessary for consciousness. Consciousness requires an intact brainstem, particularly the reticular activating system, and the thalamus. Damage to the cortex must be extremely widespread to cause coma, and states of partial unconsciousness, debated in the literature cited by Farhadi, definitely exist—that should not be a matter for theoretical discussion. I would also look to animal biology. Birds are conscious; pigeons even recognize themselves in a mirror, thus establishing that they have self-awareness and consciousness, yet pigeons have virtually no cerebral cortex.

Regarding those theories that consider memory the basis of consciousness, there are several problems from a neurological perspective. Infants appear conscious, though they do not have any memory of their experiences. Demented patients also appear conscious, though they do not later remember much of what went on around them. Patients with transient global amnesia have a brief period of lack of new memory formation, yet they are clearly conscious during the event. Hence, how can memory be the basis of consciousness? I have for this reason had difficulty with the memory-

based theories of consciousness proposed by Budson and colleagues, and also by McComas in his book “Aranzio’s Seahorse” (1).

Another area where I have difficulties with the memory model of consciousness is the idea that most of what we consider conscious activity is actually performed by the unconscious mind and then becomes conscious only after the fact. I have previously outlined this opinion in my commentary on the article by Budson and colleagues (2). Budson and colleagues cite Libet, from evidence that humans react to stimuli at a latency far too short to allow for conscious decision-making. For Budson, it is the “horse” that determines what route we take, and the “rider” experiences the decision of where to ride after the horse has already decided. While this after-the-fact consciousness may apply to many rapid actions and decisions we take, surely other decisions are more conscious and deliberate. For example, a student who decides to pursue a business career rather than an academic one to support his family makes this decision with conscious consideration of the options and, in my opinion, does not experience the decision only after the fact. That seems unlikely, and it denies all human free will and conscious decision making, with appalling ethical implications.

Overall, I found Farhadi’s review interesting and useful in listing theories of consciousness. I think the subject of whether or not AI can be conscious is an important and trendy one, but as above, I cannot accept the entire concept of AI being conscious in the way that humans are.

REFERENCES

1. McComas, Alan J., Aranzio’s Seahorse and the Search for Memory and Consciousness. Oxford University Press, Oxford, UK, 2023, 328 pp.

2. Kirshner HS. Commentary on "Consciousness as a Memory System" by Budson, Richman, and Kensinger. Cogn Behav Neurol 2023;36:59-62.