

Review of: "Provisional Definition of the Living State: Delineation of an Empirical Criterion that Defines a System as Alive"

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Review report

Provisional Definition of the Living State: Delineation of an Empirical Criterion that Defines a System as Alive

This paper attempts to define the living state of material systems using a general conceptual scheme, where “awareness” is an essential property of living systems. The author tries to explain “being alive” in an empirically testable manner. In addition, the author extended awareness to material entities, including living and nonliving, in a spectrum from the basal to cognitive levels. (P13). The author claims that awareness is an essential property for living systems, and basal awareness already exists in non-living material entities if I do not misunderstand. I agree with the importance of this perspective. Still, the article includes several issues concerning logic in the argument, definitions, and lack of clarity, which I recommend resolved to improve the quality of this article.

Major issues:

- (1) It is unclear why awareness is critical (p12) and how it is related to other properties, such as lower entropy, hypercycle (pp. 10-11), information (“energy or states of matter that have been ordered in such a way that the states have meaning to the system that has ordered it,” p16). Please see also (3).
- (2) At p 5: “This sentience and awareness animates matter and controls the motion of atoms.”: this appears to contradict the existence of basal awareness that non-living matters can have. Do atoms have no capability to be aware? Are they mere things that living systems can control? How can “integral awareness in animating living matter”(p 7) produce “the proper structural arrangement and control of energy processes”?
- (3) It is unclear about awareness of “what”? According to “self-awareness” and “aware of a self that is its states at p 17, L1-3, “ the author refers to being aware of “the self.” According to the ordinary understanding of awareness, it is about external or internal states because living systems are open systems maintained by relating themselves to the environment (escaping solipsism) while keeping internal order. Self-awareness may refer to a higher level of consciousness that

humans exhibit, which may not be applied to living systems in general.

(4) The authors provide definitions for important concepts, such as “living state” (p13), “living systems” (p15), “sentient systems” (p16), “stand-alone volition,” and system consciousness.” These definitions contain circularity or terms that need definition. I recommend the author provide more basic concepts defining awareness and consciousness.