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

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Potential competing interests: No potential competing interests to declare.

I regret to say that I am sympathetic to the remarks of one of the other reviewers that this article reads as though it was written by an AI. I'm afraid this is simply incoherent and circular word salad. Various mysteries (life, consciousness, the source of underlying order within the laws of nature and fundamental physics) are thrown together in the same sentences in the hope that this will make them less individually mysterious.

If you want to define life you need to start with what you will use your definition for. Identifying living organisms in the field one could try the usual lists of traits (growth, response to stimuli, reproduction). At a cellular level, “storage and replication of nucleic acid in conjunction with enzyme catalysis” is often taken to be quite useful.

The tricky part within the development of such definitions is addressing why the cybernetic features of life (homeostasis, entropy production, non-equilibrium states) go hand-in-hand with the information-based properties of life (replication of heritable variation), when these two categories are so different. A flame has some of the first category of properties, a computer virus some of the second, how and why do living things have both? I don't know the answer, but I'm pretty sure its not here.

Consider the abstract:

“Delineation of the characteristic that defines a system as alive is postulated; this criterion serves as a provisional definition for when matter and energy are in the state of being alive and can positively and empirically identify a system as satisfying the living state, and therefore being defined as alive.”

Could be simplified to “A definition of life is given, which can be used to identify life.”

“Within this study it is found that the requirements for abiotic matter to transition to a living system are only dependent upon a far-from-equilibrium thermodynamic low entropy state that enables animation of intrinsic universal awareness, a condition which generalizes the state of being alive to any configuration of matter and energy that can utilize information to intelligently manipulate matter and energy states for goal-oriented behavior and volitionally directed outcomes.”

Could, even ignoring the question-begging assumption of intrinsic universal awareness, be simplified to “Living things exhibit a far-from equilibrium internal state and the appearance of goal directedness” (where the goal is typically understood as survival and reproduction, evolutionary adaptation, etc).

I'm not sure what the remaining sentences in the abstract mean…..and this lack of clarity continues throughout.

The question of the appearance of teleology might reference Kant's dicussion of natural purpose, or aristotelianism or similar ideas. The supposition that memory is inherent in nature might discuss Henri Bergson, or even modern thinkers such as Rupert Sheldrake. Discussion of entropy production etc. might start with Schrodinger's “What is life?”, and/or more recent discussions of maximum entropy production within physical sciences. A defence of some form of panpsychism should be stated as a starting metaphysical assumption, rather than presented as the conclusion from a scientific investigation.