Review of: "On the Statistical Arrow of Time"

Abril Uscanga[1]

1 Universidad Nacional Autónoma de México

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I think it's an excellent proposal to assert that, from a philosophical standpoint, the origin of the arrow of time is not related to the concept of entropy and the second law of thermodynamics. As someone who personally is not specialized in the field of physics, I find the article's explanation extremely interesting and understandable. However, considering the specific parts of the article where uncertainty and coarse-graining, conservation of probability, and statistical equilibrium are discussed, I would have preferred a more simplified method to express the essential generalities of the topics covered. Nevertheless, I admit that it is highly relevant to revisit and briefly explain the foundations of statistical mechanics theory in order to understand the author's conclusion.

I strongly empathize with the intention to urge educational systems, at pre-university levels, to identify and separate the concepts of entropy and the second law of thermodynamics from that of the arrow of time. This is because, it appears that the most accepted and homologated theory in academic formation oriented towards physics is to connect the passage of time or the arrow of time with the constant increase of a system's entropy, completely ignoring the recognition of the subjective nature of the concept of entropy, which, as stated by the author, largely depends on the probability distribution assigned by an observer. In this sense, the author's conclusion highlights the importance of analyzing scientific concepts that seek to explain the mechanisms of the universe itself, so that when teaching these concepts to students, they clearly understand these subtle differences that lead to high levels of knowledge.

It would be interesting to read more about the concepts of the arrow of time and the second law of thermodynamics and the bridges that connect both in order to reach a better understanding of physics and how the universe is portrayed and how we (people who are not dedicated to the field of physics) can understand them in a broader context.