

Peer Review

## Review of: "Science in Light of the Analogy of Being"

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Review, "Science in Light of the Analogy of Being"

By Alfred Driessen

The argument in this essay is reasonable, clear, and relatively easy to follow. There is no question that it should be published. Emergence and complexity are important topics, and your discussion of these concepts is a strong point of your essay and very helpful, as is your criticism of reductionism as unscientific. I especially appreciate your openness to the need for intuition in our thinking about these terms (Part 3, penultimate paragraph).

To consider for improving the essay:

Towards the end of Part 1, you write how "Aristotle used everyday experience to illustrate his philosophical conclusions. This is something you do as well in your essay (for example, in your use of microchips and microprocessors and multidisciplinary complexity at the beginning of Part 2 and your discussion of "the design and realization of a new generation of transatlantic jets" at the end of Part 3). But the next sentence after the above quote is "In the present study, we will use De Broglie matter waves and Young's double slit experiments...." These hardly seem to be an example of "everyday experience." An intervening sentence might be useful in explaining your own use of everyday experience and how this relates to physics.

A more natural discipline to turn to in order to illustrate your point about the analogy of being, emergence, and complexity would be biology rather than physics. It appears this is something you have done already in the article referred to at the very end of Part 1. A brief summary of what you said there and an indication of why you use physics here would be useful to the reader.

A statement explaining analogical reason would be a helpful addition to Part 1.

The discussion of “substance” in Part 3 needs development. A. G. M. van Melsen points out how “science dropped this concept from its vocabulary”—why, and how does science get along without it? Also, “with respect to human beings and animals the concept *substantia* cannot be missed”—why not?

Table 1 is very helpful, but why is the highest level of being labelled “nation?” This would seem to be too political and a limiting term. Are you trying to get at the communal or social character of human existence?

Explain “x,” “0,” and “P” in Figure 1.

The last sentence in your essay refers to how Stephen Hawking raised the issue of “*Why we must ask the big questions.*” This leads the reader to expect his response. What was it?

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Substantive issues:

You avoid mentioning Heidegger on nonbeing as a challenge to your argument (for example, in your mention of “not being at all” in the context of discussing potential being at the end of the first paragraph in Part 1). It would make for a stronger case if you responded to this challenge.

The third characteristic property of complex systems listed in Part 2 is about “emergent behavior” “spontaneously arising” that is “not the result of external control and is not directly reducible to the properties of the micro-elements.” Why do you assume that this implies “wholeness” as a necessary explanatory category?

Similarly, near the end of the essay (Part 5, Conclusion), you state, “It remains one of the big questions how nature provides natural beings with the information needed to reach ever-increasing complexity.” Why isn’t asking this question presupposing the very thing for which you are trying to argue, that is, there is a “whole” that serves as an attractor explaining the otherwise seemingly random emergence of complexity?

Finally, what do we gain by accepting your argument? Why is a world guided by wholeness better (more rational?) than one of simple emergent complexity? To put this another way, why should we follow you down this path? Alternatively, who would resist following you and why?

Thank you for an engaging and stimulating essay.

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## **Declarations**

**Potential competing interests:** No potential competing interests to declare.