Review of: "Archetypal Resonances Between Realms: The Fractal Interplay of Chaos and Order"

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Potential competing interests: No potential competing interests to declare.

I commend the authors for an innovative, thought-provoking, and highly stimulating contribution to postmodern science. While this work intersects with Jungian psychology, physics, and mathematics, I found it of great value also for the social sciences and ecology (my area of expertise). It clearly brings to light the problems related to reductionist modes of inquiry that dominate these sciences, which are, however, considered useful to “solve(!)” the intricate problems of current social-ecological change – an unfortunate contradiction of terms.

A strength of the paper is that it is written in accessible language that makes the complex concepts clear to readers with little expertise in mathematics, physics, and psychology. That said, the paper will hopefully resonate with other sciences and across spheres of society more broadly. Adapting this work for outreach is recommended, but of course, not a necessity.

Talking about resonance. The title suggests that “resonance” takes a central role in the paper, which it does to a certain extent, but only implicitly draws parallels to music (manifested by the authors' use of “symphonic” and “dance”). However, the relation to music does not intuitively follow. Friedrich Cramer’s suggestion of a general resonance theory may be highly useful here to more clearly tie the presented concepts together. He makes an explicit attempt to relate resonant patterns in music (inspired by quantum physics) in a way to explain systems of people and nature as “Symphonies of life” (Cramer 1998), where everything connects to everything. The theory also relates to the emergence of self-similarity (ultimately manifested in resonance) but also “dissonant” patterns that may arise based on multidimensional/scalar processes, such as those envisioned in fractal theory, and the transitions between structure and chaos. Unfortunately, Cramer’s compelling theory has never been translated from German and is therefore largely ignored by the scientific community. In an attempt to “revive” this theory, I tried to present its core aspects and possibilities for quantification in a recent paper (Angeler 2023). Of course, the authors are by no means obliged to cite it.

Regarding archetypes, the paper, as written, seems to suggest that archetype thinking has arisen with Jung in the opening paragraphs, but the idea already dates back to Plato, who sees eternal Forms as archetypes to our understanding of reality. As the authors acknowledge later in the paper, thinking in the lines of archetypes is actually quite common and occurs across disciplines of philosophy and science, for instance, in marketing, the arts, and, considered by the authors, cultural anthropology, which makes for a nice connection to their Ouroboros metaphor. I suggest opening the discussion about archetypes in one or a few sentences already at the outset with a more general overview of archetypal thinking across disciplines and then moving on to demonstrate their approach by zooming in on Jungian psychology. This

could likely more readily capture the interest of researchers from other disciplines.

I found the following sentence “The fractal edges, where order meets chaos, echo the liminal spaces of the psyche where archetypes emerge” especially inspiring for my work. In ecology/resilience science, transitions between body-size aggregations of animals are considered a lack of environmental structures supporting their livelihoods, while the aggregations per se respond to such structuring. This lack of determinism in transition zones suggests that stochastic factors that seem reminiscent of chaos may be at play. However, ecologists have not thought along these lines, except considering transitions as areas of novelty. There is definitely fodder for rethinking interpretations of how novelty emerges.

In a similar vein, the Ouroboros metaphor aligns well with the adaptive cycle heuristic and its multiscalar extension “Panarchy” for a simplified representation of the complex patterns of collapse and renewal in systems of people and nature. The striking similarity makes a further point in support of the authors' argument that universal connectivity is fundamental in nature. Adding Panarchy to fractals and the Ouroboros heuristic more generally could perhaps make the real-world applications less abstract. It would also be the first use of panarchy within the realm of inquiry the authors work with.

The authors ask whether consciousness, rather than being a product of neural processes, could be a fundamental aspect of the universe itself, with the interface of mind/matter in the brain/body serving as a conduit or an interface. The answer would be yes from the perspective of monistic idealism, which has also been embraced by quantum physicist Erwin Schrödinger. And considering philosophy, the paper is an inspiring addition to process philosophy, which primes holistic processual relations in the entire cosmos over substantialist ontologies.

Minor:

The correct spelling of Ouroboros seems to be Ouroboros, transliterated from the Greek oúροβóρο.

References

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