



Sensitive Souls and Biosemiotic Agency as Emergence

Yogi Hale Hendlin^{1,2}

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Background

Biosemioticians seldom discuss consciousness. Whether that was a conscious decision or not, semiosis rather than consciousness has been our domain of research. We replace some of the problems associated with cuts in the *differentia specifica* of consciousness with other capacities, namely, the capacity to interpret according to species-specific constraints. Agency has been variously defined in biosemiotics (Tønnessen, 2015), but instead of being an on-or-off switch, it is viewed as having stages or gradations (Deacon, 2021; Sharov & Tønnessen, 2021). Hofstadter (2007) has hypothesized that like agency, consciousness is a more/less property (see Fig. 1). More radically, consciousness may have certain zero-sum properties unapparent through behavioral observation alone. That is, an ethology of consciousness may be hopelessly constrained by the consciousness of the observer (or willingness of the consciousness of the observer to stretch, bend, reduce, or change their own attachments to what consciousness is and does).

The field of biosemiotics has largely bracketed the question of consciousness for a variety of definitional and pragmatic reasons. As scholars increasingly aware of the extended, embedded, embodied, enactive, ecological and affective (5EA) modes of cognition, the biological and ecological basis for experiencing has unfurled a variety of interpretations of consciousness and its potential instantiations. I hesitate to use the word ‘levels’ of consciousness, because of our Linnean prejudices that a given level which confers certain advantages *ipso facto* also denotes superiority, rather than trade-offs.

Dividing conscious into discrete and hierarchical levels tends to reinforce human exceptionalist notions of competition rather than scientifically asking what organisms *do*, and how they do it. This is perhaps the pragmatist strain in biosemiotics that focuses on agency and action. Superior capacities in one area (say, ideation,

✉ Yogi Hale Hendlin
Hendlin@esphil.eur.nl

¹ Erasmus School of Philosophy, Erasmus University Rotterdam, Postbus 1738,
3000 DR Rotterdam, The Netherlands

² Dynamics of Inclusive Prosperity Initiative, Erasmus University Rotterdam, Rotterdam,
The Netherlands

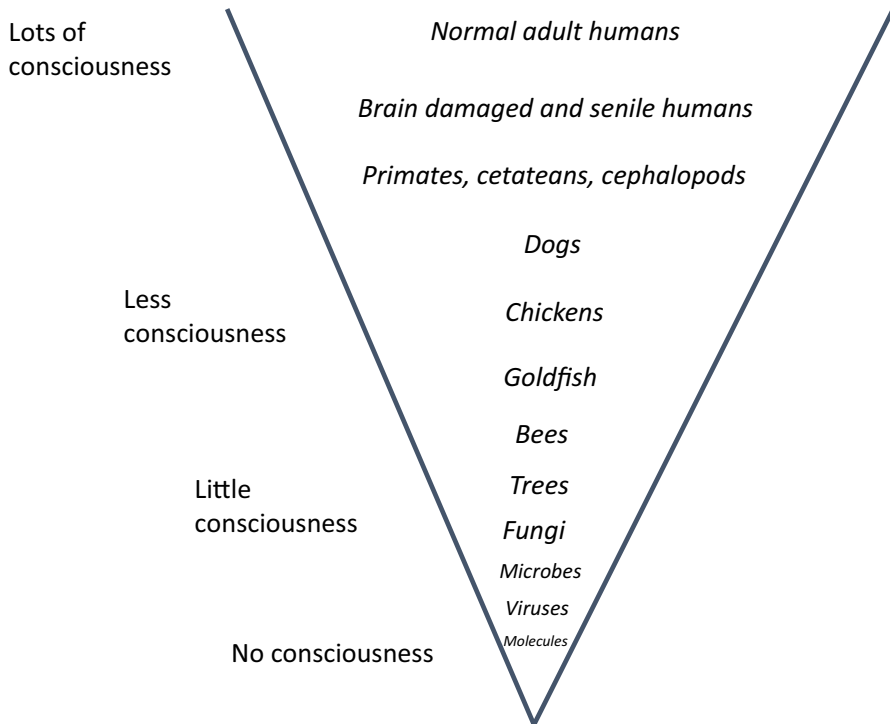


Fig. 1 'Levels' of consciousness (after Hofstadter (2007))

or hypostatic abstraction, to use Stjernfelt's (2007, 2014) distinguishing factor) may also entail reductions in access to other just as important aspects of experiencing. With the art and science that come with human cognition also comes the ability to be violent and cruel, attributes unique as far as we know to species on this planet.

I am pleased biosemiotics can productively interface with Jablonka and Ginsburg's Unlimited Associative Learning (UAL) theory of consciousness. The authors focus on percepts and feelings, in their target article similarly to their flagship 2019 book *The Evolution of the Sensitive Soul: Learning and the Origins of Consciousness*, engaging in an "evolutionary reframing" of Aristotle's schema of action and agency. Here, I'll focus on pluralizing our spectra of consciousness, and discuss the differences between the paradigm of consciousness as expressed by Jablonka and Ginsburg and that of semiosis.

Consciousness: A Single Spectrum? Or Various Strands?

Jablonka and Ginsburg lean heavily on Aristotle in their target article as well as their book to develop their theory of consciousness. Yet, the constitutive action of organisms is not something that only higher animals possess. Yes, the way action

is constituted materially and immaterially is different for different classifications of organism, absolutely; but the underlying mechanisms can be vastly divergent (say, insects and plants) while still producing similar minded outcomes. This is the importance in biology of multiple evolutionary pathways solving the questions of life, rather than a single approach. Ecological fitting solves distinct ecological niche puzzles. The plurality of consciousness, incomparable though those consciousness may be, do not preclude the element of choice, which is decisive for semiosis.

Semiosis is work in action. For Aristotle, the potentiality (*dunamis*) for work or activity (*energeia*) according to the species-specific abilities (*eidōs*) and purpose (*ergon*) of the organism is defined by the species of organism. Semiosis is the constitutive activity of how living beings organize and produce themselves as what they are, similar to Maturana and Varela's (1992) *autopoiesis*, but with the emphasis on meaning-making and interaction rather than self-making. The hylomorphism of an organism brings together its material and immaterial action, thus yoking together action and consciousness – however constrained or species-specific. The presence of agency in action even at the most basic levels of life is encapsulated in Kauffman's (1993) example of a bacterium swimming up a glucose gradient, or in the quorum sensing and apoptosis of slime molds (Vallverdú et al., 2018).

Although remarkable in their evolutionary story of the emergence of consciousness, with UAL as the crux, the authors do not incorporate much of the good work in philosophy of mind suggesting that different types of consciousness or intentionality (*sensus* phenomenology, not analytic philosophy) can occur (according to, say, varieties of neutral monism). Consciousness may well be far more diverse than we give credit. Pluralistic theories of modes of consciousness resist higher/lower designations. Comparative consciousness studies instead outline the Venn diagrams of differential consciousnesses. Plant and animal modes of consciousness, for example, while employing vastly different anatomical systems, nonetheless have some considerable overlap in terms of their abilities to sense and make sense of their environment, and respond according to their species-specific constraints (Calvo Garzón & Keijzer, 2011; Calvo, 2016, 2017; Calvo et al., 2020; Calvo & Friston, 2017; Calvo & Trewavas, 2020a, b).

Such organismic comradery in continuity of consciousness is disputed by Ginsburg and Jablonka and Ginsburg (2022, p. 431) as they write, “The hiatus between vivacious living organisms and non-vivacious machines is as large as that between conscious and non-conscious living organisms.” This chunking up of agency into vivacity and consciousness seems to kick the can of agency down the road by continuing with discrete cuts which then further beg questions of exceptions.

Invertebrate swarms may have in aggregate more intelligence than some mammals (Mikhalevich & Powell, 2020). It is also likely that certain plants may have more semiotic agency and complexity than some animals – but that we are biased in our designation of the capacities of plants (Hendlin, 2021). But again, to make such zero-sum comparisons already accepts (incorrectly) that consciousness is a single metric – or set complex of metrics – which is invariant and exhaustively discovered.

Physicalist accounts are generally eschewed in biosemiotics, as semiosis itself reflects the *Umwelt* of the organism, not the *Umgebung*. Thus, perhaps we could ask: what influence do different environments have on enabling or disabling different

forms of consciousness? The interfaces of organisms' sensory apparatuses are constrained, and are not veridical with some final reality. There is a reality that can only be asymptotically understood through our *Umwelt*, and while technology can extend it, ultimately it is always already constrained by our species-specific sensory capacities. Dashboard representations of the world, rather than offering special insight, constrain our understanding of mindedness of other organisms, especially when their consciousness/intelligence is vastly different from ours. Rather than seeing nonhuman forms of consciousness as deviating from ours declining on the same spectrum, what is proposed here is not an extensionist conception of consciousness, but a thoroughly plural, radically plural, from the bottom-up form.

To be clear, while I find Hofstadter's "V" diagram useful for problematizing clear cuts of consciousness such as Jablonka and Ginsburg make, I do not endorse it because it still posits consciousness as a more-or-less attribute according to a single spectrum. Perhaps the lumping of different types of awareness into one set is part of the main dilemma which precludes us from valuing and validating forms of consciousness that other beings, such as plants, may possess which we do not. If there is a plurality of modes of consciousness, it is possible that we as a species may not possess all their forms or attributes, or at least not have maximal levels of each, compared with other allo-organisms. This suggests that there may be a trade-off: that if there are multiple forms of consciousness (that interpolate into a single, conscious experience for the organism), that perhaps what we gain in some areas, we lose in others. Such notions are now being reintroduced in our own species as study of neurodiversity (Silberman, 2015), WEIRD people (Henrich et al., 2010), and emotional intelligence (Böll, 2008; Goleman, 2005) complicate single-metric or unitary-spectrum hierarchic models of consciousness.

Emergence and Souls

The term 'soul' in this target article references the Aristotelian notion of autopoiesis, the self-making dynamics of what some call negentropy, but which transcends merely a physical process (see Sherman's (2021) work on sequi-disciplinarity, where biology emerges from chemistry, which emerges and is non-reducible to physics). Jablonka and Ginsburg's Fig. 1 'translating' Aristotle's four causes into Niko Tinbergen's four causes is illuminating, suggesting that formal and final causes are isometric for living beings but manifest as phylogeny and function.

And while physics and chemistry do achieve their work according to their own rules, without a stake in the game, so to speak, living beings indeed change the environment in accordance with their own aims, in their own image (intentionally or not). Living beings are not passive forces, neutral to the outcome (like an earthquake might seem), but rather are goal-oriented in their changes – consciously or not. Thus, we are composed of millions of teleologies, with our self-conscious one just being the cherry on the top of all the rest. Put another way, much of our unconscious desires and action orientations are not "ours" at all *sensu stricto*, but are amalgams of many different organisms (Hendlin, 2023). Distancing ourselves from ownership

over our experience is perhaps as important a world-historic move as it was for us as a species to posit individual self-consciousness.¹

Perhaps what we think of as a possession is instead a gift afforded by particular reflections from our environment. As Whitehead reflected,

Consciousness flickers; and even at its brightest, there is a small focal region of clear illumination, and a large penumbral region of experience which tells of intense experience in dim apprehension. The simplicity of clear consciousness is no measure of the complexity of complete experience. Also the character of our experience suggests that consciousness is the crown of experience, only occasionally attained, not its necessary base. (Whitehead, 1979, p. 267)

The human emergence and addition of our particular form of conscious experience often is minor compared to the inertia of the other agents which use our superorganism to do their own bidding – or at least try to do so, in the mesh of other aims, often conflicting. If we wish to improve human decision-making, and extend the flicker of consciousness a little longer, we must focus on retaining complex ecological systems and regenerating degraded ones, so that our symbionts' flourishing may encourage our own.

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Declarations

Conflicts of Interest The author declares no Conflicts of Interest for this commentary.

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¹ Such a decentering would be based on end- and exo-biosemiosis (i.e., veridical natural science), rather than on political, ideological, or economic imperatives (as the 20th century struggles between individual and society were based).

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