



Hedonic valence at the core of consciousness

A review of “*A philosophy for the science of animal consciousness*” by Walter Veit

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Keywords

Animal consciousness · Comparative cognition · Evaluative experience · Evolution of mind · Sentience

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The possibility of consciousness in nonhuman animals has long been debated. The search for the beginnings of consciousness in nature has resulted in many positions. These have ranged from attributing it to all matter (panpsychism), all life (biopsychism), or denying its existence altogether (eliminativism), with myriad perspectives in between. Griffin (1976) the founder of the field of cognitive ethology, urged taking the mental lives of animals seriously. Darwin had revolutionised how we see life, leading us away from a notion of human uniqueness, however, Griffin noted that this revolution has not yet extended into the realm of consciousness, which far too often is still seen as specifically human. Walter Veit’s book aims to answer this call.

Veit’s work, like that of Godfrey-Smith (2020) and Ginsburg & Jablonka (2019), focuses on how consciousness evolved, and the ecological manner of life that emerged, necessitating the first sparks of consciousness. This raises the central question of how consciousness might have initially arisen (its evolutionary origins). It also prompts the functionalist inquiry into what consciousness enables an organism to do, and how it manifests in various forms (phylogenetic diversity) and degrees. The transformation of consciousness studies into a ‘true Darwinian science,’ as Veit contends, offers a desperately needed standard for investigating

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consciousness in the natural world. To achieve this, Veit advocates for an evolutionary bottom-up approach and formulates the rudiments of a theory that adopts such a perspective, thereby facilitating the comparison and examination of different animals' consciousness.

This short book is divided into six chapters. The first chapter situates the book as aiming to extend Darwinian evolution from life to consciousness. Veit emphasises the link between health and consciousness, advocating for the naturalisation of both. The second chapter explores variations and gradations of consciousness, drawing from Birch et al.'s (2020) dimensions and proposing experimental paradigms for investigation. In the third chapter, Veit peels away layers of consciousness. The dimensions of unity and temporality are seen as possible ways of organising experience but not necessary. Sensory experience and self-awareness are presented as two sides of a false dilemma that Veit sees between externalism and internalism - again leaving room for something more primary. Evaluative experience or hedonic valence is left as the core of consciousness. The fourth chapter traces the evolution of hedonic valence during the Cambrian explosion, crucial for navigating increased action freedom and pathological complexity. Chapter five examines how various animals manifest these dimensions of consciousness, from gastropods to corvids - adding the layers of consciousness back on. Finally, the sixth chapter summarises the necessity of an evolutionary and ecologically informed bottom-up approach, centring on a teleonomic understanding of the organism.

In what follows I will briefly discuss the main original contributions of *A philosophy for the science of animal consciousness*. In doing so I will highlight the strength of this short, yet dense, book in its criticism of some common tendencies in the field of consciousness studies, and its interesting suggestion of valence as the core of consciousness. This will be followed by noting how the strategy offered by this book might actually lead to a fragmentation and shift of the problem of consciousness.

The key original contributions of this book can be found in two interconnected aspects. First, Veit's pathological complexity thesis asserts that "the function of consciousness is to enable the agent to respond to pathological complexity" (2023, p. 2). Here, Veit departs from for instance Godfrey-Smith (2020) and Tomasello (2022) both of which emphasise environmental complexity as the driving factor for the adaptive value of consciousness. Veit instead draws a link between health and consciousness, aiming at a 'biological normativity'. This thesis is fleshed out by state-based behaviour and life-history theory. Life history theory aims to explain the strategies diverse organisms adopt as goal-directed systems. In his teleonomic theory, Veit advocated for leveraging life history theory to distinguish healthy from pathological traits. This builds on evolutionary game theory by highlighting the role of consciousness in deciding between the trade-offs organisms need to deal with in maximising fitness. As animals acquire more degrees of freedom, they encounter greater pathological complexity and face more trade-offs, with the dynamic process of negotiating these optimization problems constituting the or-

ganism's life history strategy. With fitness serving as the common currency, health becomes a measure of the success an animal achieves in optimising its strategy.

Second, this book adopts a reverse-engineering approach to the dimensions of consciousness introduced by Birch et al. (2020), identifying evaluative experience or hedonistic valence as the most fundamental form consciousness can assume. From this starting point, the other dimensions of consciousness evolved in response to the diverse trade-offs animals faced in their natural environments.

One of the key strengths of this book is its in-depth discussion of the historical motivations behind the study of animal consciousness. It criticises the notion that the study of consciousness primarily, and for some exclusively, revolves around human subjects. Human beings are often taken as the paradigmatic case of consciousnesses, accessible and thus investigable, leading to the assumption that the study of consciousness in all other animals should derive from this paradigm (if such extrapolation is even possible). Veit also critiques the underutilization of the toolkit provided by modern evolutionary biology, alongside general neglect of the question concerning the origins of consciousness. Lastly, Veit identifies many existing theories of consciousness as trapped within a false dilemma of externalism versus internalism. This false dilemma can be understood in terms of emphasising an organism either as a: subject, explaining its behaviour in terms of internal features; or as an object whose behaviour can be explained in terms of environmental pressures, or other external forces. Veit argues that this dichotomy obscures the crux of the target phenomenon, phenomenological complexity, which is best tackled by emphasising dynamic feedback (note the similarity to Hurley, 2002).

Another strength of Veit's approach lies in his linking of consciousness studies to concepts from evolutionary game theory. The trade-offs any animal will face in its attempts to maximise fitness are seen as driven by the experience of pain and pleasure, with all other dimensions of consciousness building on this starting point. Taking hedonic valence, as this common currency is far from a new idea (Veit cites Bentham as one such origin point). Yet, it has received remarkably little attention in the field of consciousness studies, where (among other things) qualia have often been front and centre in debates. Which is especially odd seeing as it is rather intuitive to think of a vague sense of either something negative (such as pain or hunger), or something positive (pleasure, or satiety), as one of the most primary instances of experience. Veit highlights this point by citing Sytma & Machery (2009) who find that folk intuitions on consciousness also take hedonic valence as key to the experience of consciousness (rather than qualia).

Beyond these strengths there are some points raised by Veit that would warrant further discussion. Here, I would like to highlight two of these, both of which relate to the so-called explanatory gap, or hard problem of consciousness. In broad terms both of these refer to difficulty in explaining how physical processes generate subjective experiences (Chalmers, 2010; Levine, 1983). Veit claims that the dimension of evaluative experience allows for a "promising narrowing of the explanatory gap between matter and mind" (2023, p. 44). The idea behind this claim

is that the reverse-engineering approach to consciousness could narrow the explanatory gap as it results in a smaller target that requires explanation, from five dimensions to one. Veit does not aim to ‘solve’ the hard problem, nor does his account answer the question of how conscious experience is realised. But can his account indeed ‘narrow the gap’?

A distinction can be drawn between the ‘why question of consciousness’ and the ‘how question,’ which constitutes the explanatory gap. The question of why consciousness arose can be interpreted as inquiry into its adaptive value or the evolutionary pressures that led to its emergence. This is separate from the inquiry into how subjective experiences or qualia can come about on a physical substrate. It might indeed be the case that having an answer to ‘the why of consciousness’, could be helpful to the ‘how’. But this link is not made here. This book tells us a nice and fairly convincing story of the evolutionary emergence of consciousness from its most basic form, to more advanced ones. It details what might have motivated such a change, not how the change was constituted. Following Veit’s account one might make the case that if we can have the ‘how’ for evaluative experience, everything could then be bootstrapped from there. But this is far from clear as one might make the case that each additional layer of consciousness would need an explanation as well. After all, if I know how (and which) physical processes give rise to evaluative experience, this does not necessarily tell me how unity comes about. It could provide this answer, but it need not. What Veit’s account then enables is not a narrowing of the gap, as much as a fragmentation of it. Instead of having a single ‘how’ question to answer we would have five, if not more. However, this in itself might be an advantage as we could then address the hard problems bit by bit - instead of through one unified theory. If we take consciousness as gradually evolving, it might be particularly interesting to see how various dimensions came about and might possibly also exist apart from one another, in some instances.

Godfrey-Smith (2020) discusses the registration of sensory stimuli in insects, prior to there being any evaluation of it. Veit counters that there is some evidence for evaluative experience in insects, but he also notes that it might be possible that some animals lost this most basic layer of consciousness as it ceased to have functional value. Although an elegant solution to the insect problem, this does open the door to a more significant issue regarding the fragmentation of the hard problem. If hedonic valence is the core of consciousness but we can have de-cored consciousness, then this core cannot function as a necessary condition for consciousness to be present (or as a common currency) - meaning investigating and comparing consciousness would have to entail investigating all the dimensions separately. This brings us back to the starting point of Birch et al. (2020) and limits any ‘narrowing of the gap’ that might have occurred due to the ordering of the dimensions as done by Veit.

There is also a sense in which a reader might counter Veit’s dealing with the explanatory gap as shifting the problem forward. Throughout the book, Veit makes references to degrees of freedom. Although a commonly used term, it is not entirely

clear what is meant by it. It might be asking as to whether or not the behaviour is innate versus learned, automatic versus non-automatic, or refers to the specific learning or information processing strategies a being can engage in to accomplish its goals. It could refer to action control, coordination, autonomy, or a range of other things. However, even if we settle on a clear meaning for this term, its emergence is also unclear. If an increase in freedom entails an increase in pathological complexity which thereby necessitates the emergence of hedonic valence, then what exactly created this rise in freedom in the first place? A picture painted by the likes of Godfrey-Smith (2020), Tomasello (2022), and to some extent Dennett (1998) would have degrees of freedom in acting emerging in response to increasing environmental complexity - action increases hand-in-hand with sensory capacities. The more I can sense, the more I can act upon, and the other way around. However, if 'degrees of freedom' are taken as the enabling condition for consciousness then this seemingly shifts the problem of finding the origins of consciousness forward, rather than removing it.

All in all, *A philosophy for the science of animal consciousness* offers a possible path of the evolution of consciousness. This approach could indeed establish a much-needed standard in consciousness studies, addressing aspects often overlooked, such as continuity, gradations, and variations in nonhuman animals. Moreover, it could potentially serve as a starting point for interesting discussions regarding the explanatory gap. Readers with an interest in animal consciousness, cognition, or the evolution of mind will likely find a great deal of value in this book. Veit's work serves as a promising initial step towards realising Griffin's vision for cognitive ethology and extending Darwinian evolution to consciousness.

Acknowledgments

This work was funded by the European Union under Grant Agreement 101070918, EMERGE project. I thank Ophelia Deroy, Azenet Lopez, and an anonymous reviewer for the helpful comments and advice.

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Meertens, N. (2024). Hedonic valence at the core of consciousness: A review of “*A philosophy for the science of animal consciousness*” by Walter Veit. *Philosophy and the Mind Sciences*, 5. <https://doi.org/10.33735/phimisci.2024.11472>



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<https://doi.org/10.33735/phimisci.2024.11472>



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