Symposium Proposal: Animal Consciousness in Comparison to Human Consciousness

Colin Allen (colin.allen@pitt.edu)
Department of Philosophy, 4200 Fifth Avenue
Pittsburgh, PA 15260 USA

Albert Newen (albert.newen@rub.de)
Department of Philosophy II, Universitätsstraße 150
44801 Bochum, Germany

Carlos Montemayor (cmontema@sfsu.edu)
Department of Philosophy, 1600 Holloway Avenue San Francisco, CA 94132 USA

Eva Jablonka (jablonka@tauex.tau.ac.il)
The Cohn Institute for the History and Philosophy of Science and Ideas, Ramat Aviv
Tel Aviv, 699780 Israel

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Core Challenges of Animal Consciousness Do some species of nonhuman animals (hereafter "animals") enjoy consciousness and to which degree? This is a notoriously difficult question for at least two reasons, namely first we need a sufficiently clear concept of consciousness and second it remains difficult to characterize convincing strategies of access to conscious experiences in other species since we then have to rely on third-person access and mostly on behavioral data. Lacking a communicative access to animal minds, it is difficult to justify an analogy argument. Let us characterize central open question guiding the symposium: (1) Concerning the scientific access: How can we develop a nonverbal access to conscious experiences in animals? (2) Are there behavioral markers of consciousness in animals? (3) What is the main functional role of consciousness from an evolutionary perspective? (4) Can we offer a conceptual framework which allows us to adequately characterize evolutionary old basic forms of consciousness and its relation to standard consciousness experiences in humans? The symposium is arranged with four talks which together aim at outlining answers to these questions.

Colin Allen: The Dynamics of Consciousness, Without Words

The temporal dynamics of consciousness have long been a matter of psychological interest. Arguably, scientific psychology begins with Herbart's attempts to formulate mathematical principles describing the dynamics of consciousness. Later, William James was influenced by Fechner's psychophysical approach and was drawn to the idea of a "specious present" of conscious awareness, extended in time and changing in its contents. Insofar as psychophysical methods have played a role in comparative cognition, they have mostly been applied to static decision tasks such as discriminating between similar stimuli to establish just noticeable differences. In humans, psychophysical investigation of the dynamics of consciousness has relied on verbal protocols such as verbally reporting events with a Libet clock. The challenge for extending such investigations to nonhumans lies in finding nonverbal equivalents or alternatives. I will discuss and evaluate some ways in which the challenge of developing a dynamical psychophysics of animal consciousness might be met.

Albert Newen: A Comparative Perspective with a New Framework: the ALARM Theory of Consciousness

The aim is to characterize the core functional role of consciousness and to outline a two-level theory of consciousness to account for the relation between evolutionary old and more recently developed types of consciousness. The conceptual suggestion is that we should distinguish two levels of consciousness, namely bodily arousal and general alertness. This conceptual distinction is proven to be adequate and epistemically fruitful for three reasons: 1. It allows us to distinguish two different core

functional roles of consciousness: for an evolutionary old biological system bodily awareness is activated to trigger a state of alarm of the system which enables it to activate an immediate survival reaction, e.g. if homeostatic regulations of temperature or breath can no longer automatically adjust because it is too hot or not enough oxygen is available, then this leads to bodily awareness in form of pain to activate the being to leave and search for a cool area resp. a fresh air environment. Evolutionary younger biological system with a

developed prefrontal cortex enjoy general alertness. The main function is to enable new types of learning: This includes onecase learning in the context of a system of conscious attention designed to monitor and respond to important signals, e.g. a biological system hurts by fire and then never touches fire again. This can already be realized with bodily arousal – as described above. But if this is combined with general alertness, i.e. basic attention on the whole situation (combining relevant signal with successful reaction), the system can learn new correlations as realized in operant conditioning. 2. The distinction fits nicely to recent empirical observations of the role of deep cortical and thalamic brain activities for human visual consciousness as described by Halassa (Nakajima et al. 2019). 3. The two-level theory allows us to describe animal consciousness as unfolded in two versions. Thus, we can systematically investigate for each species which type of consciousness is implemented and how this is realized. Furthermore, this enables us to describe differences and similarities between human and animal consciousness.

Carlos Montemayor: Evolutionary Markers and the Emergence of Consciousness

According to Simona Ginsburg and Eva Jablonka (2019), Unlimited Associative Learning (UAL) is a general cognitive marker of consciousness. In fact, Ginsburg and Jablonka argue that UAL is an evolutionary transition marker, defined in terms of a package of cognitive capacities that jointly suffice for grounding phenomenal consciousness. These are abilities for cognitively processing compound stimuli, novel stimuli, second-order conditioning, trace conditioning, and easily rewritable associations with value. Ginsburg and Jablonka claim that these capacities constitute a natural cluster, and that they likely did not evolve independently from each other. I will argue that although the authors are right about most of these claims, their key proposal that these capacities constitute phenomenal consciousness is unjustified because cross-modal attention explains UAL better than phenomenal consciousness, and the possibility that UAL is necessary but insufficient for consciousness remains open

Eva Jablonka: The Evolution of Consciousness: Origins and Effects

I present an evolutionary account of consciousness developed with Simona Ginsburg, suggesting that the emergence of consciousness was driven by the evolution of a complex form of associative learning that we call unlimited associative learning (UAL). I discuss the implications of our proposal for questions pertaining to the neural dynamics that constitute consciousness, to its taxonomic distribution and to the ecological context in which it was selected. According to out theory, consciousness and UAL emerged in parallel in arthropods and vertebrates in the ecological context of the Cambrian, and led to learning-driven adaptations in these two phyla and to a cascade of diverse behavioral and morphological adaptations in the species that interacted with them. Another important effect was the evolution of active forgetting and the sophistication of the stress response: since UAL often led to over-learning, and over-learning would have led to stress, there was strong selection for active forgetting and enhanced stress response in the species manifesting UAL. More generally, I argue that many aspects of animal morphology and behavior are inexplicable if the evolutionary effects of consciousness are not considered.

References

Allen, C., & Trestman, M. (2017). Animal Consciousness. In The Blackwell Companion to Consciousness (S. 63–76). John Wiley & Sons, Ltd. https://doi.org/10.1002/9781119132363.ch5

Allen, C., & Trestman, M. (2020). Animal Consciousness. In E. N. Zalta (Hrsg.), The Stanford Encyclopedia of Philosophy (Winter 2020). Metaphysics Research Lab, Stanford University.

Ginsburg, S., & Jablonka, E. (2019). The evolution of the sensitive soul: Learning and the origins of consciousness. MIT Press.

Haladjian, H. H., & Montemayor, C. (2015). On the evolution of conscious attention. Psychonomic Bulletin & Review, 22(3), 595–613. https://doi.org/10.3758/s13423-014-0718-y

Marchi, F., & Newen, A. (2016). The cognitive foundations of visual consciousness: Why should we favour a processing approach? Phenomenology and the Cognitive Sciences, 2(15), 247–264. https://doi.org/10.1007/s11097-015-9425-z

Montemayor, C., & Haladjian, H. H. (2015). Consciousness, Attention, and Conscious Attention. The MIT Press.
Nakajima, M., Schmitt L. I., Halassa M. M., (2019). Prefrontal cortex regulates sensory filtering through a basal ganglia-to-thalamus pathway. Neuron.

Vosgerau, G., Schlicht, T., & Newen, A. (2008). Orthogonality of Phenomenality and Content. American Philosophical Quarterly, 45(4), 309–328.