

Drawing the boundaries of animal sentience

Commentary on [Mikhalevich & Powell](#) on *Invertebrate Minds*

Walter Veit

School of History and Philosophy of Science, University of Sydney

Bryce Huebner

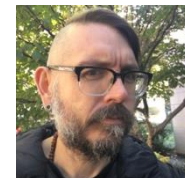
Department of Philosophy, Georgetown University

Abstract: We welcome Mikhalevich & Powell’s (2020) (M&P) call for a more “inclusive” animal ethics, but we think their proposed shift toward a moral framework that privileges false positives over false negatives will require radically revising the paradigm assumption in animal research: that there is a clear line to be drawn between sentient beings that are part of our moral community and nonsentient beings that are not.

[Walter Veit](#) is a PhD candidate in the School of History and Philosophy of Science at the University of Sydney. His dissertation is on the origins of sentience and consciousness as a “mere” byproduct of the evolution of damage detection, nociception, and pain. [Website](#)



[Bryce Huebner](#) is the Provost's Distinguished Associate Professor in Philosophy at Georgetown University. He is primarily interested in the structure of cognition and agency, the different kinds of minds we find in our world, and the implications of cognitive science research for ethical theorizing. [Website](#)



In a letter to William Cavendish, written in 1646, Rene Descartes (1991, 173-175) considers three possibilities regarding the distribution of sentience:

- (i) *no nonhuman animals are sentient*, because the only plausible evidence of sentience is the use of a language to reveal an awareness of what things mean
- (ii) *some nonhuman animals are sentient*, because they engage in nonlinguistic behaviors so flexible that they are not fully explicable in mechanistic terms
- (iii) *all nonhuman animals are sentient*, because the cross-species continuity of biological mechanisms reveals that differences in sentience are a function of biological complexity.

Like most philosophers and scientists, Descartes rejects (iii), arguing that it would require incorrect attributions of minimal sentience to simple organisms like oysters and sponges. He also rejects (ii) because it would require arbitrarily stipulating what degree of complexity is sufficient to yield sentience and could include forms of behavior that could be performed insentiently. Descartes therefore proposes accepting that *only* humans are sentient.

Few contemporary scientists or philosophers are likely to accept Descartes's conclusion that sentience is unique to humans. But although Descartes's *a priori* approach to animal sentience has few contemporary adherents, his concern to address the problem of determining the boundaries of sentience persists among animal sentience researchers today, with an enhanced focus on the kinds of states that would place an animal within the bounds of our moral community. Birch (2020), for example, contends that there is a dividing line in nature "between the entities that have no experiences of any kind, and those entities that do," although he notes that "[f]inding that line, and understanding how it was crossed, is a challenge for evolutionary biology" (p. 288).¹

Disputes about where this line should be drawn have recently unfolded around the ability of fishes to feel pain. Consider Key's (2016) target article against fish sentience, which rests on the claim that fishes lack the neocortical structures responsible for human experiences of pain. As Michel (2019) notes, many of the commentaries attack this way of drawing a line, insisting on the possibility that pain could be realized in multiple ways (Braithwaite & Droegge 2016; Manzotti 2016; Seth 2016; Ng 2016; Elwood 2016; Godfrey-Smith 2016; and Segner 2016; Merker 2016a,b,c, commented three times on the boundary problem). Michel concludes that we could *never* empirically settle the question of whether nonhuman animals such as fishes can feel pain. This reasoning, however, rests on the false premise that unless we can provide a boundary line between sentience and insentience, there is nothing to say about animal sentience.

Analogous boundary-line debates continue concerning many species of invertebrates, including octopuses (see commentaries on Mather 2019) and honeybees (see commentaries on Klein & Barron 2016). Although a great deal of progress has been made in clarifying the cognitive and behavioral capacities of nonhuman animals, the acceptance of Descartes's second possibility — that there is a clear line to be drawn between sentient and nonsentient species — is likely to remain ethically and philosophically dubious in this context for the foreseeable future. The distribution of cognitive traits is like a banyan tree, with multiple overlapping branches (Godfrey-Smith 2018). There is little evidence of a distinctive mark that would allow us to include all and only those organisms that are taken to be sentient according to folk-ontology (Figdor 2018). So even if data seem to suggest that invertebrates do not experience pain in precisely the same way that vertebrates do, the assumption that they are not sentient is too narrow for understanding the nature of suffering. The apparent alienness of invertebrate behavior might indicate only that their minds are different, rather than that they lack sentience all together.

Against this backdrop, Mikhalevich & Powell (2020) (M&P) make a convincing case that we should re-examine the empirical assumptions and the cognitive and affective biases underlying the moral risks associated with animal welfare. Much of M&P's argument focuses on sophisticated forms of invertebrate behavior, rejecting the claim that sentience and sophisticated cognition should only be inferred where we can be certain of their existence. M&P argue instead that erring on the side of false positives is *prima facie* ethically preferable: "the costs of falsely attributing sentience to animals are minor while the costs of false negatives are high (because, for instance, they result in a great deal of unnecessary suffering)".

¹ The situation is similar in the case of attempts to draw a clear line marking when a developing fetus becomes sentient. Here too, there are numerous policy-making decisions that must be made about how to balance the relevant risks, with the risk-balancing decisions typically influenced by cognitive and affective biases (see Lyerly et al. 2007 and Lyerly et al. 2009).

We agree. But as Figdor (2020) rightly notes, the cognitive and affective biases underlying outdated evolutionary ideas, as well as mistaken views about the capacities of small-brained animals, have proved difficult to unseat. Sentience continues to be treated as a property that organisms can either have or lack. We think that one of the main reasons for this is that those working on animal sentience are committed to finding the boundary that will allow them to determine precisely where animals deserve to be treated as sentient. If so, adopting a framework that privileges false positives over false negatives is likely to require a more pervasive shift in moral phenomenology, or perhaps a return to the third possibility that Descartes ruled out (Calvo 2017; Reber 2016; Lyon 2015).

Much of the research on animal sentience and animal welfare assumes that membership in our moral community is an all-or-none matter. To Descartes, it seemed a boundary could be drawn *a priori*. The past several decades of empirical research have demonstrated that our assumptions about where this boundary might lie are flexible; there has been a continuous updating of our assumptions to include more and more species (Low et al. 2012). As M&P argue, however, these revisions have not taken us far enough. Perhaps instead of trying to draw boundary lines, we should embrace the view that sentience comes in many different kinds. Acknowledging that sentience might not look the same in all organisms does not imply that all living entities must be accorded the same moral considerations. It only requires realizing that trying to draw clear boundaries is preventing us from determining *what* and *how* animals feel, so we can treat them better.

What would it mean to acknowledge the possibility of a minimal form of sentience in all nonhuman animals, with the differences only reflecting species differences in the quality, intensity and complexity of sentience? This would require asking ourselves “how should we treat different animals who may experience forms of suffering and distress peculiar to their species?” This is a complex moral problem in which possibilities of causing harm must be weighed and evaluated along the kinds of lines that commentators Vonk (2020) and Browning & Veit (2020) suggest. The future of animal sentience research lies not in drawing boundaries but in empirically investigating *what it feels like to be* an echo-locating bat, an infrared-sensing snake, an octopus with multiple distributed ganglia, a fish without a neocortex, or an arthropod such as a spider or a honey bee.

References

- Birch, J. (2020). In search of the origins of consciousness. *Acta Biotheoretica* 68, 287–294.
- Braithwaite, V. A. & Droege, P. (2016). [Why human pain can't tell us whether fish feel pain](#). *Animal Sentience* 3(3).
- Browning, H. & Veit, W. (2020). [Improving invertebrate welfare](#). *Animal Sentience* 29(4).
- Calvo, P. (2017). What is it like to be a plant? *Journal of Consciousness Studies* 24(9-10), 205–227.
- Descartes, R. (1991). *The Philosophical Writings of Descartes, Vol. 3: Correspondence*. Cambridge University Press. Translation by J.G. Cottingham, R. Stoothof, D. Murdoch, & A. Kenny.
- Elwood, R. W. (2016). [A single strand of argument with unfounded conclusion](#). *Animal Sentience* 3(19).

- Figdor, C. (2018). *Pieces of Mind: The Proper Domain of Psychological Predicates*. Oxford University Press.
- Figdor, C. (2020). [Relationship between cognition and moral status needs overhaul](#). *Animal Sentience* 29(3).
- Godfrey-Smith, P. (2016). [Pain in parallel](#). *Animal Sentience* 3(21).
- Godfrey-Smith, P. (2018). Towers and trees in cognitive evolution. In B. Huebner (Ed.), *The Philosophy of Daniel Dennett*. Oxford University Press.
- Key, B. (2016). [Why fish do not feel pain](#). *Animal Sentience* 3(1).
- Klein, C. & Barron, A. B. (2016). [Insects have the capacity for subjective experience](#). *Animal Sentience* 9(1).
- Low, P., Panksepp, J., Reiss, D., Edelman, D., Van Swinderen, B., & Koch, C. (2012). [The Cambridge Declaration on Consciousness](#). Cambridge, England.
- Lyerly, A. D., Mitchell, L. M., Armstrong, E. M., Harris, L. H., Kukla, R., Kuppermann, M., & Little, M. O. (2007). Risks, values, and decision making surrounding pregnancy. *Obstetrics & Gynecology* 109(4), 979–984.
- Lyerly, A. D., Mitchell, L. M., Armstrong, E. M., Harris, L. H., Kukla, R., Kuppermann, M., & Little, M. O. (2009). Risk and the pregnant body. *Hastings Center Report* 39(6), 34–42.
- Lyon, P. (2015). The cognitive cell: Bacterial behavior reconsidered. *Frontiers in Microbiology* 6, 264.
- Manzotti, R. (2016). [No evidence that pain is painful neural process](#). *Animal Sentience* 3(11).
- Mather, J. (2019). [What is in an octopus's mind](#). *Animal Sentience* 26(1).
- Merker, B. H. (2016a). [Drawing the line on pain](#). *Animal Sentience* 3(23).
- Merker, B. H. (2016b). [How not to move the line drawn on pain](#). *Animal Sentience* 3(40).
- Merker, B. H. (2016c). [The line drawn on pain still holds](#). *Animal Sentience* 3(46).
- Michel, M. (2019). Fish and microchips: On fish pain and multiple realization. *Philosophical Studies* 176(9), 2411–2428.
- Mikhalevich, I. & Powell, R. (2020). [Minds without spines: Evolutionarily inclusive animal ethics](#). *Animal Sentience* 29(1).
- Ng, Y-K. (2016). [Could fish feel pain? A wider perspective](#). *Animal Sentience* 3(13).
- Reber, A. S. (2016). [Caterpillars, consciousness and the origins of mind](#). *Animal Sentience* 11(1).
- Segner, H. (2016). [Why babies do not feel pain, or: How structure-derived functional interpretations can go wrong](#). *Animal Sentience* 3(26).
- Seth, A. K. (2016). [Why fish pain cannot and should not be ruled out](#). *Animal Sentience* 3(14).
- Vonk, J. (2020). [No room for speciesism in welfare considerations](#). *Animal Sentience* 29(5).