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Why we should study animal consciousness

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The New York Declaration on Animal Consciousness (Andrews, Birch, Sebo, Sims, 2024) highlights increasing empirical evidence supporting the existence of sentience in many animal species. The views in the Declaration rest on an increasingly popular theoretical approach that comparative psychologists could use to guide research on non-human consciousness.

Comparative psychologists tend not to discuss consciousness. It is often argued that this is because we don't have a valid methodology for accessing animal's mental states. Of course, we also don't have direct access to any other cognitive process. Instead, we investigate the characteristics of cognitive processes indirectly, via their effects on observable behavior. The relevant distinction between the study of consciousness and other kinds of cognition is that we lack a consensus on the *function* of consciousness, and therefore on what its specific effects on behavior should be. If a rat solves a maze faster after being exposed to it, we can confidently state that there is a representation somewhere in the rat's brain of at least some features of the maze. It is difficult to devise an explanation of the rat's behavior that doesn't involve an internal state that most people would call 'memory'. In contrast, because we have not identified any strict behavioral correlates of consciousness – behaviors that can only be exhibited by conscious beings – we can devise for any behavior an explanation that does not resort to consciousness as a mechanism.

Several approaches to the study of animal consciousness have nonetheless been devised. Many different forms of consciousness have been distinguished, such as sentience, self-awareness, or inner speech. Although contentious, theories of what consciousness *is for* have been constructed – from which predictions for its behavioral effects can be derived. Neural correlates of consciousness have been sought in humans – homologs of which might exist in the brain activity of other animals. Human behaviors that only occur when a subject is conscious have been identified – some of which are also seen in other species. All these efforts have shortcomings, not least their (possibly inescapable) assumption that animal consciousness must look a lot like human consciousness. Nonetheless, these approaches suggest that we might be able to identify empirical behavioral or neurophysiological evidence that is relevant to questions about non-human consciousness.

The New York Declaration on Animal Consciousness (NYD; Andrews, Birch, Sebo, Sims, 2024) is an attempt to make progress on just one of these questions: which species are (likely to be) conscious? The declaration (which can be read here: nydeclaration.com) is brief, but will eventually include an appendix detailing the empirical evidence for its claims (I am a contributor to the appendix and have signed the

declaration). NYD claims there is a large and growing body of behavioral evidence suggesting most vertebrates and many invertebrates are sentient.

NYD exclusively addresses sentience (also called phenomenal or primary consciousness), often defined as the ability to have internal experiences which may be positive or negative. The declaration says nothing about more complex forms of consciousness. The canonical example of sentience is pain: if an animal is capable of feeling pain, it is sentient.

Of course, we lack direct access to the painful (or pleasurable) feelings of others. NYD adopts the *marker* approach (Birch, 2020), seeking behaviors that might serve as indicators of sentience. This approach acknowledges that no behavioral marker will ever be definitive, but that many different behaviors or patterns of brain activity can be suggestive of sentience. If an animal displays several behaviors that we think might require or be facilitated by having internal experiences, we might be persuaded (as we often are in the case of other cognitive processes) that the simplest explanation for all those behaviors involves an intervening variable, which we might then label 'sentience'.

Accepting the marker approach requires adjusting our level of confidence in what we know. We will likely never be as certain that an animal is sentient as we are that rats can remember mazes. NYD claims only "at least a realistic possibility" of sentience in vertebrates and some invertebrates. We might then legitimately ask, what is the benefit of declaring such a weak conclusion? I think that, at a minimum, it might stimulate future research in comparative cognition that could increase our confidence (we may even become increasingly confident that some species are *not* sentient). However, more than attempting definitive answers, the goal of the declaration appears to be to help shift the initial assumptions that often drive research and policy priorities; to decide based on the existing evidence where best to place the burden of proof. If an animal may be sentient, NYD states, then "it is irresponsible to ignore that possibility in decisions affecting that animal".

One remaining question, which the declaration does little to address, is how to select appropriate markers. This is where the lack of a robust functional theory of consciousness becomes truly problematic. As noted above, if we don't know what consciousness does, how do we know what effects to look for in behavior? Partly due to this lack of consensus, there is disagreement about which markers to focus on, or what criteria to use in selecting candidate behaviors. Birch (2020) proposed that sentience serves to facilitate a range of behaviors, such as trace conditioning, rapid reversal learning, or cross-modal learning. Ginsburg and Jablonka (2021) suggest that consciousness emerged with the evolution of Unlimited Associative Learning, a term they coin to refer to a form of open-ended learning that supports such feats as compound multimodal discrimination and second-order conditioning. Others advise using only those behaviors that seem to require consciousness in humans (Mason & Lavery, 2022), such as working memory, operant conditioning, mirror self-recognition, or episodic memory (I note that all of these proposals are far more developed, sophisticated, and partially congruent with each other than presented here; I urge interested readers to consult the primary sources).

Most readers of *Learning & Behavior* will be familiar with many of these paradigms. The empirical data on which arguments about animal sentience are constructed come, for the most part, from comparative cognition labs. There is no question that our current understanding of human consciousness is poor, and our conception of what other species' consciousness might look like is even less developed. However, the approach embodied in NYD suggests that research in many areas of comparative cognition, on a

wide range of species, can help us make progress on these questions. In other words, comparative psychologists have a key role to play in consciousness research.

A second objection often raised to the study of consciousness in animals is that it is "better to pursue a purely objective analysis of behavior and cognition... [that] avoids such treacherous concepts as mind and consciousness" (Wasserman & Zentall, 2006, p. 9). This implies that consciousness cannot be approached objectively, has no measurable effect on behavior, and is different from cognition. I believe that we know enough about consciousness today to state with confidence that, whatever consciousness is for, it has *some* function, and whatever its mechanism, it is a type of cognition. This places the study of consciousness firmly within the domain of comparative cognition. By refusing to engage with this topic, we do not preclude conversations about animal consciousness from occurring; they simply occur in the absence of our perspectives.

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