

Last April, Johan J. Bolhuis and Clive D. L. Wynne published in Nature (458(7240), 832-833) a paper entitled "[Can evolution explain how minds work?](#)" doubting the use and usefulness of evolutionary analysis in understanding cognitive mechanisms. In response, Lewis Wolpert ("[Cognition: evolution does help to explain how minds work](#)" in Nature, 459(7246), 506-50), Sara J. Shettleworth ("[Cognition: theories of mind in animals and humans.](#)" in Nature, 459(7246), 506-506) and Frans B. M. de Waal ("Darwin's last laugh." in Nature 460, 175 (9 July 2009) freely available [here](#)) separately defended the use of evolutionary theory, and in particular comparative analysis, in the study of cognition.

Bolhuis and Wynne concluded:

"Clearly, functional and evolutionary questions are intertwined, as are questions of causation and development. It is unclear, however, what an analysis of the evolutionary history of cognitive behaviours could add to our understanding of how they work, even if such an analysis were possible. At most, an evolutionary interpretation could provide clues to the underlying mechanisms responsible - but such clues would have to be verified using controlled experiments.

We are not suggesting an abandonment of Darwin's insights. Rather, we call for care in their application. When reconstructing the evolutionary history of cognitive traits, there is no a priori reason to assume that convergence will be more important than common descent or vice versa. In addition, evolutionary theory may suggest hypotheses about the mechanisms of cognition, but it cannot be used to actually study these mechanisms.

As long as researchers focus on identifying human-like behaviour in other animals, the job of classifying the cognition of different species will be forever tied up in thickets of arbitrary nomenclature that will not advance our understanding of the mechanisms of cognition. For comparative psychology to progress, we must study animal and human minds empirically, without naive evolutionary presuppositions."

[Frans de Waal](#) answers:

"I disagree. The opposite approach of anthropo denial - the a priori rejection of continuity between humans and other animals - has led people to systematically underestimate animals. Well into the last century, comparative psychologists had animals perform arbitrary laboratory tasks unrelated to the problems they face in their natural environments. This theory-free 'behaviourism' never advanced our understanding of cognition to the degree that Darwinism has."