

## Are We Smart Enough To Know How Smart Animals Are?

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People often ponder what essential quality makes us human. It is a simple yet inordinately complex question. The answers tend to focus on a trait that sets us apart from our closest ape relatives — and by extension from the rest of the animal kingdom — the shape of our toes, the use of tools, or the ability to make plans for the future (ie thinking ahead). Although, one-by-one, all these claims to human uniqueness have fallen by the wayside, the question remains and is at the core of comparative cognition, driving much of the research in this area. It also carries with it the unfortunate assumption that there is something inherently special about humans. In *Are We Smart Enough To Know How Smart Animals Are?* de Waal criticises the length of time animals' cognitive abilities have been measured against human standards, ignoring the immense variation in the ways the world can be perceived. He argues that if “all organs and processes are a great deal older than our species, having evolved over millions of years with a few modifications specific to each organ, why should cognition be different?” The focus on a *scala naturae* (in which animals, man and even celestial beings are placed in a hierarchy of perfection) has not only limited our capacity to understand animal cognition but has also lured many into concluding that animals lack certain cognitive capacities. These claims have consequences that lie beyond the academic and philosophical debate as to the uniqueness of the human race, since the capacity for higher order cognition — or its absence — drives decisions on legislation related to the use of animals.

De Waal is looking for a paradigm shift in our approach to animal cognition and encourages us to create a more comprehensive framework that covers “all the various cognitions found in nature”. In this new framework — cognitive evolution — animals should be put into their own biological context, and cognitive abilities should be viewed as a way of solving the problem of survival, rather than questioning whether or not they differ from ours. The knowledge of an animal's typical behaviour, and the consideration of each species' ecology are, thus, key to advancing our understanding of animal cognition.

The reader will discover that, despite this premise being seemingly obvious, much of the cognitive research and, in particular, the research comparing human and ape cognition, is conducted using a human-centred approach. Experiments work by keeping everything identical between conditions, while manipulating the variables that are of interest. However, experiments aiming to compare human and ape performance on cognitive tasks have often failed to take into account the biological needs of the species being compared, not to mention their environmental status, thereby violating this central experimental paradigm.

Human subjects are usually tested in their own environment, with direct contact with the experimenter (ie a conspecific), talking to them and, in the case of children, in the presence of one of their parents (often sitting on their laps while conducting the test). In contrast, apes are tested with members of another species, separated by physical barriers from the experimenter, typically isolated from other group members during testing, and tested about human tasks with human materials. Furthermore, the captive living conditions of ape subjects, or the traumatic experiences that many of them have gone through (eg wild-caught orphans rescued from the illegal bush-meat trade, or individuals being relocated to different groups or facilities for management reasons), may have compromised the development of their cognitive abilities, as we know is the case in human subjects. The introduction of such systematic biases in experimental procedures is highly questionable, as other researchers have previously pointed out, and might directly impact upon the outcome, yet are commonplace in comparative cognition studies. De Waal argues that if we really want to learn about ape cognitive abilities, we should design chimp-tests, tests that are biologically relevant to them, tests that take into consideration differences in motivation and attention. “One cannot expect a great performance on a task that fails to arouse interest,” de Waal notes. The same principle applies to any other species. However, it is not unusual to find studies comparing the cognitive abilities of apes — or primates — with those of non-primate species. The premise is that each species has a unique evolutionary history, and therefore none can be used as a model for the others.

Although de Waal suggests this shift in paradigm for cognitive science, it holds equally true for studies in other areas, such as animal emotions or animal welfare. Policies on animal welfare are based on the assumption that those experiencing pain and suffering in a similar way to humans, deserve protection. Once again, the *scala naturae* view is at the core of our understanding of animal suffering, and therefore protection. Equally important for animal welfare is de Waal's suggestion of putting animals into their own biological context when studying their cognition. Studies exploring animal cognition need to rely on carefully designed procedures that take into consideration the animal's physical abilities, interests, ecology and lifestyle for the conclusions to be valid. As the reader will discover, the book is full of examples of how animals' earlier poor performance in cognitive tests had more to do with the manner in which they were tested than their mental power. “Clearly, it is time for us to start testing animals in accordance with their biology and move away from human-centric approaches” de Waal notes.

An important part of the book is dedicated to the history of the study of animal cognition, and how tortuous the path has been for those who believed that the words cognition and animal should come naturally together. During much of the 19th and 20th centuries animals were considered mere machines responding mechanically to stimuli, and intelli-

gence and consciousness were deemed unique to humankind. This presumption has been overturned in recent decades as studies on behaviour and cognition became more detailed. De Waal's background as a pioneer and leading expert in primate research and social cognition comes quickly to the fore in this history lesson. His work is full of quotes from personal encounters, acknowledgement to colleagues, and details of the intellectual battle between these two schools of thought. This book is not, however, an open debate about the possibility that other species may have an internal intelligence capable of making sense of the world around it, "I do not believe in stupid animals" he writes, but it encompasses and organises empirical evidence from systematic behavioural observations and laboratory experiments to support it. After

all, all animals actively seek, collect and store information that is relevant for their survival.

In the end, the reader will not find in this book a conclusive answer to the question: Are we smart enough to know how smart animals are? Although there is a growing tendency toward the integration of our own abilities with that of other animals: "There's still a long way to go". De Waal's suggestion of asking ourselves "What are the cognitive strengths, and how do these relate to survival?" when assessing the capabilities and intelligence of other species may bring us a little bit closer.

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