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Book Review

Mindreading Animals: The Debate over What Animals Know about Other Minds
Robert W. Lurz
Cambridge, MA: MIT Press, 2011
264 pages, ISBN: 0 262 016 052 (hbk); $35.00

Do nonhuman animals view other agents as minded beings? Does a chimpanzee know that a conspecific can see an object, hear a sound, have knowledge of a past event, or be ignorant of something? Or do nonhuman animals instead view others as mindless agents—beings that behave in particular ways, but have no inner life? Robert Lurz addresses these questions in his book, *Mindreading animals*. Lurz's book is an important contribution to philosophical analyses of nonhuman animal psychology and behavior, as well as empirical studies on mindreading. The book is essential reading for any student or scholar studying the theoretical and empirical issues involved in the investigation of mindreading in nonhuman animals.

Mindreading animals focuses on a methodological issue known as the "logical problem," which is the problem of empirically determining whether nonhuman animals are mindreaders or behavior-readers. After first arguing that the logical problem is a serious problem for all contemporary research aimed at testing whether nonhuman animals attribute mental states (such as hearing, seeing, and knowing) to others, Lurz proposes a solution to the problem and shows how it can be implemented empirically. In what follows, I present an overview of *Mindreading animals* and then consider two general worries with the main claim advanced in the book.

Chapter 1 introduces and motivates the question of whether nonhuman animals are capable of mindreading. Lurz highlights the scientific, philosophical, and ethical importance of answering this question. He also introduces some of the key issues in animal mindreading research by presenting a concise overview of its history from the 1970s to the present.

The logical problem is introduced and defended in chapter 2. The core of the problem is the claim that there are two equally good explanations for why a subject might behave like a mindreader in contemporary psychological experiments. The first explanation is that the subject is in fact mindreading; the second explanation is that the subject is not mindreading at all, but rather engaging in what Lurz calls

''complementary behavior-reading.'' Following the literature, Lurz refers to this problem as the ''logical problem'' because it appears to emerge from the logic or design of mindreading experiments.

The way that researchers typically test for mindreading abilities in nonhuman animals is by placing a subject in a situation in which the subject must take into account the mental states of another agent in order to respond appropriately to the experimental task. For example, the subject might face a situation in which he has the choice of stealing food from a competitor by reaching through either an opaque or a transparent tunnel (Melis, Call, & Tomasello, 2006). Assuming that the subject wants to maximize his success of stealing food from the competitor, the appropriate response in this case is to reach through the opaque tunnel so as to conceal one's approach from the competitor. If a subject implements this strategy without training, then researchers take it as evidence that the subject understands (to some extent) what the other agent can and cannot see in this situation.

The logical problem challenges this experimental approach by positing that subjects learn or innately know rules that link certain observable situations with certain behavioral outcomes. For example, a chimpanzee might learn or innately know that a competitor is less likely to respond to attempts to steal food when there is an opaque barrier between the competitor's eyes and the food to be stolen, compared to when there is no opaque barrier between the competitor's eyes and the food. Because opaque barriers and food competitions are common features of the chimpanzee's natural environment, it is possible that chimpanzees have learned or evolved such rules. Complementary behavior-reading is ''complementary'' because the situation that the complementary behavior-reader uses to make behavioral predictions is the same as that used by the mindreader.

Lurz presents his solution to the logical problem in chapter 3. Lurz argues that the logical problem is a problem for contemporary mindreading experiments because those experiments aim to test animals' abilities to attribute simple cognitive states to others. Simple cognitive states are those that the attributing agent takes to be about an existing situation. The mental state of seeing a hand reach through a transparent tunnel, for example, is about an existing situation insofar as there really is (or was or will be) a hand reaching through a transparent tunnel. In order to avoid the logical problem, Lurz argues, one must test an animal's ability to attribute full-blown intentional states. Such states are ones that are about situations that the attributing agent does not think actually exist. For example, attributing to an agent an illusory perception is a full-blown intentional state attribution insofar as the attributing subject knows that the situation represented by the illusory perception does not exist.

According to Lurz, focusing on the attribution of full-blown intentional states avoids the logical problem because the content of such states does not match existing situations; thus, reasoning about the former should often result in different behavioral predictions than reasoning about the latter. Consider, for example, the case in which situation x typically leads agents to exhibit behavior b_1 and situation y typically leads agents to exhibit behavior b_2. A subject with this background

knowledge then observes an agent in situation x, but has reason to believe that this agent is under the perceptual illusion that situation y obtains. If the subject is capable of mindreading, he should expect the agent to perform behavior b_2 (because situation y obtains for that agent), whereas if the subject is only capable of complementary behavior-reading, he should expect the agent to perform behavior b_1 (because the agent is actually in situation x).

Lurz bolsters the claim that animals are capable of attributing full-blown intentional states by introducing an account of how this ability might have evolved. This account (called the "appearance-reality mindreading theory") posits an evolutionary scenario in which those individuals capable of attributing full-blown intentional states have an adaptive advantage over those individuals relying on complementary behavior-reading alone. The adaptive advantage results from the fact that mindreaders can better predict the behavior of agents in those settings in which agents' subjective views do not match the objective facts of the world. Complementary behavior-readers, in contrast, are limited to predicting the behavior of other agents on the basis of objective situations; thus, they are unable to take into account the fact that agents sometimes act on subjective perceptions and beliefs, and will make inaccurate behavioral predictions in those circumstances in which agents' subjective views differ from reality.

The solution to the logical problem, then, is to test for a subject's ability to attribute full-blown intentional states in such a way that ensures that the attributing subject cannot rely on observable situations for making behavioral predictions. Chapters 3 and 4 show how this solution can be implemented empirically by introducing a variety of novel experiments that psychologists might conduct with different animals (including chimpanzees, ravens, and dogs). Chapter 3 examines how to implement this solution for testing perceptual-state attributions, while chapter 4 focuses on belief attributions.

One general worry that I have with Lurz's solution to the logical problem is that it precludes the possibility of testing an animal's ability to attribute simple cognitive states independently of the animal's ability to attribute full-blown intentional states. This is problematic because it is possible that some animals are capable of attributing simple cognitive states to others without also having the more sophisticated ability of attributing full-blown intentional states. In fact, this is what some comparative psychologists have proposed with respect to chimpanzee mindreading (Call & Tomasello, 2008). If this is the case, requiring that animals attribute full-blown intentional states in order to count as mindreaders runs the risk of producing false negatives. However, the main motivation for solving the logical problem was the worry that current experiments might be producing false positives. Thus, it would be helpful if Lurz explained how his solution avoids swapping one error-prone empirical approach for another. In other words, we need reasons for adopting Lurz's more demanding criteria of mindreading that go beyond the desire to avoid false positives (Sober, 2001).

A second worry with Lurz's solution to the logical problem is whether it is entirely successful on its own terms. Lurz is careful to show how the results of his proposed

experiments cannot be explained in terms of complementary behavior-reading; however, the complementary behavior-reading explanations that Lurz considers are often relatively straightforward. For example, a common rule proposed by Lurz in the context of his visual perspective taking experiments relies on an agent establishing a direct line of gaze to an object in the experiment. However, it remains to be seen if one cannot appeal to more complex forms of complementary behavior-reading in order to explain the behavior of those subjects in Lurz's experiments that act like mindreaders. Such subjects might, for example, rely on the general rule, ''the agent will behave in this situation *x* (the actual situation) as he normally would when faced with the situation *y* (the illusory situation).'' In such a case, the subject would not have to understand that the other agent represents the situation *x* as *y*, but would simply need some reason for imagining that the agent will behave as if he is in situation *y*. Though this might require that the subject represent a situation that is not immediately present (namely, situation *y*), it would not require mindreading in the sense of representing representations *as* representations (Perner, 1991).

If such complementary behavior-reading accounts can be devised to explain the results of Lurz's proposed experiments, then the logical problem has not been solved. In this case, one might wonder whether the logical problem is in fact an empirical problem or whether it is instead a general skeptical problem along the lines of the theoretician's dilemma. The theoretician's dilemma maintains that if a theory successfully establishes an observable regularity, then it is no longer necessary because we can always replace it with that observable regularity (Hempel, 1958). Analogously, we might maintain that if establishing some observable regularity is required for successful mindreading, then mindreading is unnecessary. If this is what the logical problem comes down to in the end, then it is not a problem that researchers should be required to empirically solve before making claims about the mindreading abilities of nonhuman animals.

Mindreading animals provides a theoretically deep analysis of the issues involved in the investigation of animal mindreading. It spares no empirical detail, but is written in a way that will engage general and specialist readers alike. Regardless of whether Lurz ultimately succeeds in solving the logical problem, this book will play an important role in shaping future theoretical and empirical work on animal mindreading.

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