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Great apes read peoples' minds and help those with false beliefs



I know what you're thinking
Joel Sartore/National Geographic Creative

By **Sam Wong**

OUR closest evolutionary relatives are quite the mind readers. And they can use that knowledge to help people figure things out when they are labouring under a misapprehension, according to the latest research.

The ability to attribute mental states to others, aka theory of mind, is sometimes considered unique to humans, but evidence is mounting that other animals have some capacity for it.

In a study last year, chimps, bonobos and orangutans watched videos of people behaving in different scenarios as cameras tracked their eye movements. The experiment found that the apes looked where an actor in the video would expect to see an object, rather than towards its true location, suggesting the animals were aware others could hold false beliefs.

But that experiment left open the possibility apes were simply predicting that the actor would go to the last place he'd seen the object, without understanding that he held a

false belief. Now, David Buttelmann at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, and colleagues tested 34 zoo chimpanzees, bonobos and orangutans, in search of more conclusive evidence.

In their test, person A places an object into one of two boxes, then either remains in the room or leaves. Person B removes it, places it in the other box and locks both boxes. Then A tries to open the box where they left the object. The apes know how to unlock the boxes and can decide to open either one.

When A remained in the room, the apes were equally likely to unlock either box. But when A wasn't there for the switch, the apes unlocked the box containing the object in 77 per cent of trials. This shows apes can recognise when A is acting under a false belief, the researchers argue. The apes guess that the person is trying to find the object, and help them by opening the right box. Their performance in this test closely matches the behaviour of a 16-month-old baby.

In a second test, A gives the object to B, then leaves the room while B puts the object in one of the boxes. In this case, rather than having a false belief, A doesn't actually know where the object is. The apes chose to unlock each box equally often, perhaps, the researchers say, because it was less clear what the person's intention was (*PLoS One*, DOI: 10.1371/journal.pone.0173793)

Because the apes behave differently in each of the two scenarios, it shows they have some mental representation of what the other person believes, says Buttelmann, rather than just thinking that person doesn't know where the object is.

The results show apes apply their understanding of others' beliefs when deciding how to behave in social interactions, he says. Many other studies have found that great apes understand other mental states such as goals, intentions and desires. "The fact that we now have two studies that show evidence of belief understanding in great apes, shows that we are not that different," says Buttelmann. "Whether this belief understanding is as fully fledged as it is in humans is a different question."

Alia Martin from Victoria University of Wellington, New Zealand, isn't convinced by the conclusions. "I'm excited to see researchers look for this amazing ability in apes, but we're going to need more research to settle the ape theory of mind debate."

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