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Dogs Are No Mind Readers

By Lucas Laursen
ScienceNOW Daily News
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Despite thousands of years of domestication, dogs have a hard time figuring out what humans are thinking. That's the conclusion of a new study, which shows that dogs continue to trust unreliable people and therefore lack a so-called theory of mind.

Humans don't start out with a theory of mind. Ask a toddler if his mother knows where he has hidden a toy, for example, and he'll likely say "yes," even if his mom has no idea. That's because the child assumes his mother knows everything he does; he doesn't have a real insight into what she's thinking. As the child grows up, however, he will begin to understand what his mother does and doesn't know, and will thus indicate that, "No, Mommy doesn't know where I hid the toy."

Showing theory of mind in nonhumans has proven much more difficult. A 1978 study claimed to have identified a rudimentary theory of mind in chimpanzees by showing that they could anticipate the intentions of another animal. But later work was less conclusive. More recently, Alexandra Horowitz of Barnard College in New York City found that dogs ensure that they have other dogs' attention before playing with them. They also nip at distracted dogs to regain their attention, suggesting that dogs may have theory of mind when it comes to [other dogs](#).

To test dogs' theory of mind when it comes to humans, psychologist William Roberts and colleagues at the University of Western Ontario in Canada matched 24 dogs ranging in size from dachshunds to vizslas with both helpful and deceptive people. The team sat each dog near a tree in a park and placed two buckets at a distance; both smelled like food but only one contained it--a frankfurter. Sometimes a helpful human called the dog and pointed at the food-filled bucket. Other times, a deceptive human directed the dog to the empty bucket. If the dog fell for the ruse, the deceiver pretended to eat the sausage in order to ensure that the dog understood that it had missed a chance for a meal.

Over 225 trials, the dogs did not waver in their fidelity to the trustworthy humans, obeying them 78% to 96% of the time. But the dogs gradually lost faith in the untrustworthy humans, obeying them only about 53% to 60% of the time by the end of the trials.

Roberts's team suggests that the dogs stopped trusting humans not because they could intuit what the humans were thinking but merely because they had learned to associate certain humans with a lack of food reward. In other words, the dogs may have learned that a particular person is a sign of an empty food bowl without deciding that a particular individual is untrustworthy, the team [reports](#) online today in *Behavioural Processes*.

To test that idea, the researchers removed the human element. They replaced the people with

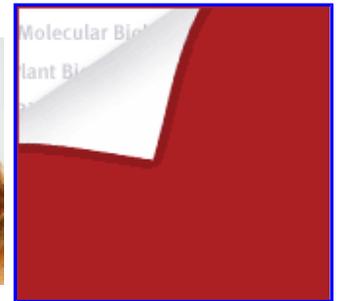
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Understand? Dogs may not understand the motivations behind our actions.

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cardboard boxes: Sometimes a black box was placed behind a food bucket and sometimes a white box was placed behind an empty bucket, for example. Over 160 trials, the dogs learned to trust the "cooperative" boxes, heading straight toward them more than 60% of the time. They also learned to distrust the "deceptive" boxes, "obeying" them only 40% of the time.

Although the percentages for the box trials are lower than what the researchers saw in the human trials, the differences between them--about 20%--are nearly the same between the two trials. If the dogs truly had theory of mind, says Roberts, they should have figured out that deceptive people would continue to deceive them even faster than they learned to recognize the misleading boxes.

Ethologist Ádám Miklósi of Eötvös L. University in Budapest agrees that the dogs were probably relying on associations versus intuiting what the humans were thinking. But Miklósi, who has been studying dog behavior since 1998, says that there may be other ways of uncovering how canines think. The presence of humans, whom pet dogs see as dominant packmates, may have interfered with the dogs' natural motivation to seek out food in this study, for instance. "The problem [with the researchers' approach] is that they do not take into account ... the social world of the species," Miklósi says.

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