

## Conclusions

The combined results of the two studies indicate that dogs' social skills involve an understanding of visual perspective: they seem to understand what a human is looking at in the given moment but not what she has seen in the immediate past.

## Future directions

Further studies regarding the mechanisms of dogs' social skills are needed to understand the cognitive foundation on which these skills are based. Converging evidence from various studies might then allow us to conclude how much dogs actually understand about our minds.

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# Social cognition in dogs

- Reading your body or understanding your mind?



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## What makes dogs special?

Dogs outperform various animal species, even our closest relative the chimpanzee, when it comes to reading human communicative signals such as pointing. The dog is in addition the only animal that uses gaze direction as a communicative signal. But where do these social skills come from?

## The origin of dogs' social skills

The dog is the first animal that has lived incorporated in the human society for such a long time. Dogs social skills seem to have developed during the domestication process that transformed the dog from its ancestor, the wolf, to the diversity of dogs today. Individuals who had more sophisticated skills for interacting and communicating with humans had a selective advantage

## Something more than behavioural cue reading?

However, how much the dog actually understand about the communicative situation and the communicative partner, the human, is not known. Do they understand the communicative intent behind the signals or are they just responding to behavioural cues?

## Understanding visual perspective

Studying dogs' understanding of visual perspective is a way to investigate if dogs' social skills involve something more than behavioural cue reading. Do dogs understand that when a person is looking at an object she is actually seeing something? And that the human's visual perspective can differ from their own?

## Study 1- Does the dog understand which toy the experimenter has not seen?

At the cognitive level, the recognition of attention is not depending on specific cues, it is instead a mental representation of the state of the other individual. Study 1 aimed at investigating dogs' understanding of past visual access. The hypothesis states that dogs understand what humans have and have not seen and predicts that dogs will be able to pick out a toy because it is new to the human, even if it is known to the dog.



Experimental setup

Two experimenters and the dog played together. Before the last of three toys was played with one experimenter left the room. The second experimenter continued playing with the dog. When the first experimenter entered the room again all toys were presented and she expressed excitement over the toy that was new for her. She then asked the dog to fetch, without designating specifically which toy.

### Results

The dogs did not show an understanding about which toy that the experimenter had not seen. However, the dogs were not only required to make the inference that the experimenter had not seen one of the toys because she was out of the room, it also required some understanding of that humans get excited over things that are new to the communicative situation. The results therefore do not allow us to determine which of the two skills dogs are lacking.

## Study 2 - Can the dog follow human gaze to an object behind a barrier?

Dogs are able to follow gaze to an object, but it is not clear what mechanisms this ability is based on and to what degree they understand the referential and communicative aspects of the gaze. The evidence that dogs can follow human gaze to an object within their current visual field is not sufficient evidence that they understand that the human is actually seeing something.



Experimental setup

The present study therefore investigated dogs' ability to follow gaze to a location behind a barrier, outside the dogs' current visual field.

### Results

The results did not quite reach significance but showed an indication suggesting that dogs have this ability. A larger number of dogs have to be tested to draw firm conclusions.

### References

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