Domestic dogs are sensitive to a human's perspective

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Summary

We investigated dogs' ability to take the visual perspective of humans. In the main study, each of two toys was placed on the dog's side of two small barriers (one opaque, one transparent). In experimental conditions, a human sat on the opposite side of the barriers, such that she could see only the toy behind the transparent barrier. The experimenter then told the dog to 'Bring it here!' (without designating either toy in any way). In the Back Turned control *E* also sat on the opposite side but with her back turned so that she could see neither toy, and in the Same Side control she sat on the same side as the dog such that she could see both toys. When toys were differentiable dogs approached the toy behind the transparent barrier in experimental as compared to back turned and same side condition. Dogs did not differentiate between the two control conditions. In a second study dogs were not sensitive to what a human had or had not seen in the immediate past. These results suggest that, even in the absence of overt behavioural cues, dogs are sensitive to others visual access, even if that differs from their own.

Keywords: dogs, perspective taking, social cognition.

Introduction

Recent studies have shown that dogs, most likely as a result of domestication, possess special abilities to read human given communicative signals (Hare et al., 1998; Miklosi et al., 1998; Agnetta et al., 2000). Each study

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set up situations in which a human hid food in one of several distinct locations and then gave a communicative cue to the dog to indicate where the food was hidden. In this setting dogs display great skills in reading human social-communicative signals such as pointing and eye gaze direction etc. Evidence that these skills are indeed special and probably restricted to the social domain comes from four additional facts. First, even humans' closest primate relatives have severe difficulties in most versions of this so-called object choice task. In about a dozen different studies, from several different laboratories, chimpanzees and other ape individuals without training are very seldom above chance in using any of these social cues to find hidden food (Call & Tomasello, 2005). Indeed, in direct comparisons in the object choice paradigm, dogs outperform apes in reading human social cues (Bräuer et al., 2006; Hare et al., 2002). Second, Miklosi et al. (2003) and Hare et al. (2002) both found that dogs are much more skilful at reading human social cues than are wolves. Miklosi et al. (2003) hand raised dogs and wolf puppies under identical conditions and still, if tested at four month of age, dogs readily followed the communicative cues, while wolves did not (but see Frank & Frank, 1985 for evidence that wolves are more successful in problem solving tasks). Third, dog puppies, with hardly any human contact and from a very early age on readily used human communicative cues (Hare et al., 2002), even if these are directed to a location behind them (Riedel et al., 2008). Fourth and finally, when dogs are compared with chimpanzees in various non-social cognitive tasks (e.g., understanding causal relations), they show no special skills (Osthaus et al., 2005; Bräuer et al., 2006). This suggests that dogs' ability to read human social cues is a relatively focused adaptive specialization that comes not from their evolutionary history as canids, or from their individual experiences with humans, but rather it is a recent evolutionary response to selection pressures during the domestication process within human cultures.

Previous studies have also shown that, besides reading certain communicative signals, dogs are also sensitive to humans' attention. Call et al. (2003) showed that dogs who were forbidden by a human to take a piece of food refrained from taking it when the human was watching, but took it when the adult turned her back, closed her eyes, or was distracted with other activities. The same sensitivity to a human's attention is also expressed in a more cooperative situation in which a dog had to decide who to beg from. Dogs in this study differentiated a person whose eyes were covered with a blindfold