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A friend or an enemy? Dogs' reaction to an unfamiliar person showing behavioural cues of threat and friendliness at different times

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Abstract

Responsiveness of adult pet dogs (*Canis familiaris*) to an unfamiliar human was observed in two studies. Subjects were faced with an approaching woman (Stranger) who showed definite signs of friendliness and threat during alternate approaches. Observations consisted of two episodes: the Stranger either approached the dog in normal speed of walk while talking to it and finally petted it gently (Friendly approach episode) or she moved slowly and haltingly and looked steadily into the eyes of the dog without any verbal communication (Threatening approach episode).

In the first study 30 dogs of 19 different breeds were tested in the two episodes in a balanced sequential order. The dogs acted appropriately according to the different human behaviour cues. The order of the Friendly/Threatening approaches had no significant effect on the dogs' responsivity.

In the second experiment 60 dogs of three breed groups (20 Belgian shepherds, 20 retrievers and 20 sled dogs) were first 'greeted friendly' and then approached 'threateningly' by the same Stranger. Results show significant breed specific differences in the responsivity when dogs faced an apparent switch of the human behaviour cues. Compared to retrievers and sled dogs, Belgian shepherds more frequently changed their response, showing passive or active avoidance or sign of aggression when approached threateningly.

While sex differences were not found, breed comparisons suggest that selective breeding (i.e. for hunting or shepherd work) influenced the dogs' sensitivity to human social cues in different ways.

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Results also support the hypothesis that human influence (domestication) has led to extreme flexibility of the dogs' situation-relevant behaviour while interacting with an unfamiliar human.

Keywords: Dog; Dog–human interaction; Social cues; Breed differences; Aggression

1. Introduction

The ethological analysis of human–animal interaction is of great importance for understanding the evolution and function of behaviour in domestic species. Recent investigations have shown that studying dog–human interaction is important for understanding the evolutionary process (i.e. domestication) in general and the evolution of social communicative abilities in particular (see Miklósi et al., 2004 for review).

Domestic dog (*Canis familiaris*) is a socially skillful species as it is extremely sensitive to human bodily visual communication cues (body position, gestures, head orientation) and is able to utilize these cues in choice tasks (see Miklósi and Soproni, in press for review). Further, it has been shown that visual attention has special relevance to dog-human communication. Dogs are not only able to exceed chimpanzees in recognising the subtle changes of human attention in food choice tasks (Soproni et al., 2001; Povinelli et al., 1999) but are able to discriminate the focus of their human partner's attention when instructed verbally in a training situation (Virányi et al., 2004) or in retrieval tasks (Gácsi et al., 2004).

It seems that gaze cues have multiple function in dog–human relation and are used not only for the expression of dominance but also in other communicative situations as attention getting signals or indicating the focus of attention. For example, staring is often used in dominance related situations where subordinates break eye contact earlier than dominant ones (Bradshaw and Nott, 1995) and similar behaviour can also be observed in play situations when groupmates initiate playful interactions (Bekoff, 1995). The dogs are responding to social cues of another species, for example in some cases when they interact with humans (Miklósi et al., 1998).

Moreover, it seems that different cues (e.g. body posture, position of tail and ears, orientation of head, etc.) shown simultaneously by the interactants constitute a meaningful pattern and therefore a single cue involved in the pattern cannot be interpreted in themselves. The pattern as a whole can exhibit willingness to play, aggression, superiority, submission, etc. Among dogs for example, upright body position accompanied with staring, tail up and ears erected expresses dominance and threat while opposite changes in behaviour show inferiority (Schenkel, 1967).

Human and dog are similar in their communicatory systems in the sense that both place considerable emphasis upon visual signals of the body and face. For example, the human smile is remarkably similar to the grin of the dog when it greets another individual, and both could serve as appeasement gestures. Despite the fact that dog trainers routinely utilize social cues in the course of training, the problem of how these stimuli are functioning in dog–human interactions has received relatively little attention.

When the role of social cues in dog–human interaction is studied, we should consider that present dogs are the result of a special behavioural evolutionary process called