

Dogs interpret human emotions in a two-way choice situation

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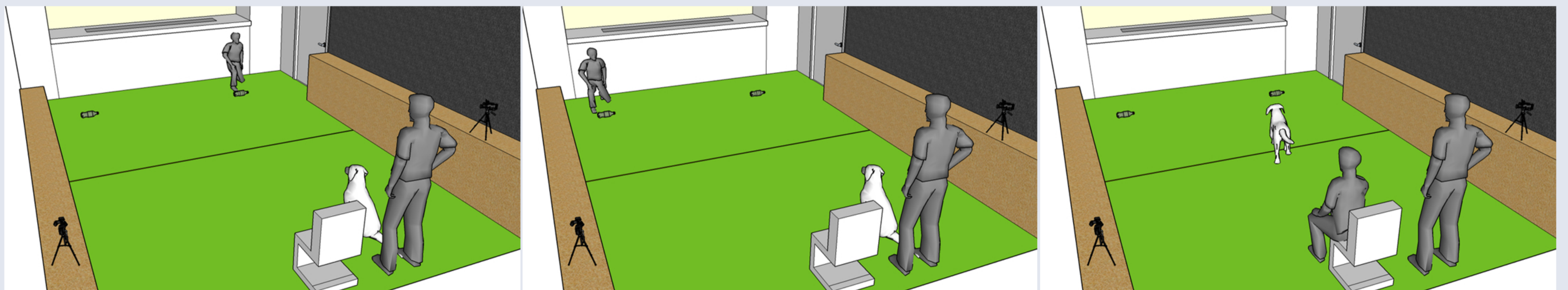
Introduction

Recently, considerable attention has been paid to the dogs' empathic abilities without consistent results (Silva and de Sousa, 2011). Dogs seem to be able to detect some human emotional expressions (Buttelmann and Tomasello, 2012), however, some methodological concerns might question the results and conclusion.

In this study we investigated whether dogs recognize and rely on the owners' emotional expression in a two-way object choice test.

Method

Two bottles, one with food, the other with a stone; the owner expresses emotions 4 groups: happy - neutral; happy - disgust; neutral - disgust; neutral - neutral



The dog **approaches** the bottles and **fetches** one bottle to the owner to receive its content

Each dog received one condition, N=20 dogs / group, balanced for age, gender and breed distribution

Results

In the three experimental groups, the dogs' first approach was random, but they fetched the bottles marked with the more positive emotions above chance level; the performance in the control group (neutral-neutral) was on chance level (Fig. 1). The performance in the first trial showed the same pattern, the dogs approached the bottles randomly but they fetched the bottle marked with the more positive emotion above chance (Binomial test, N = 20, $p < 0.041$).

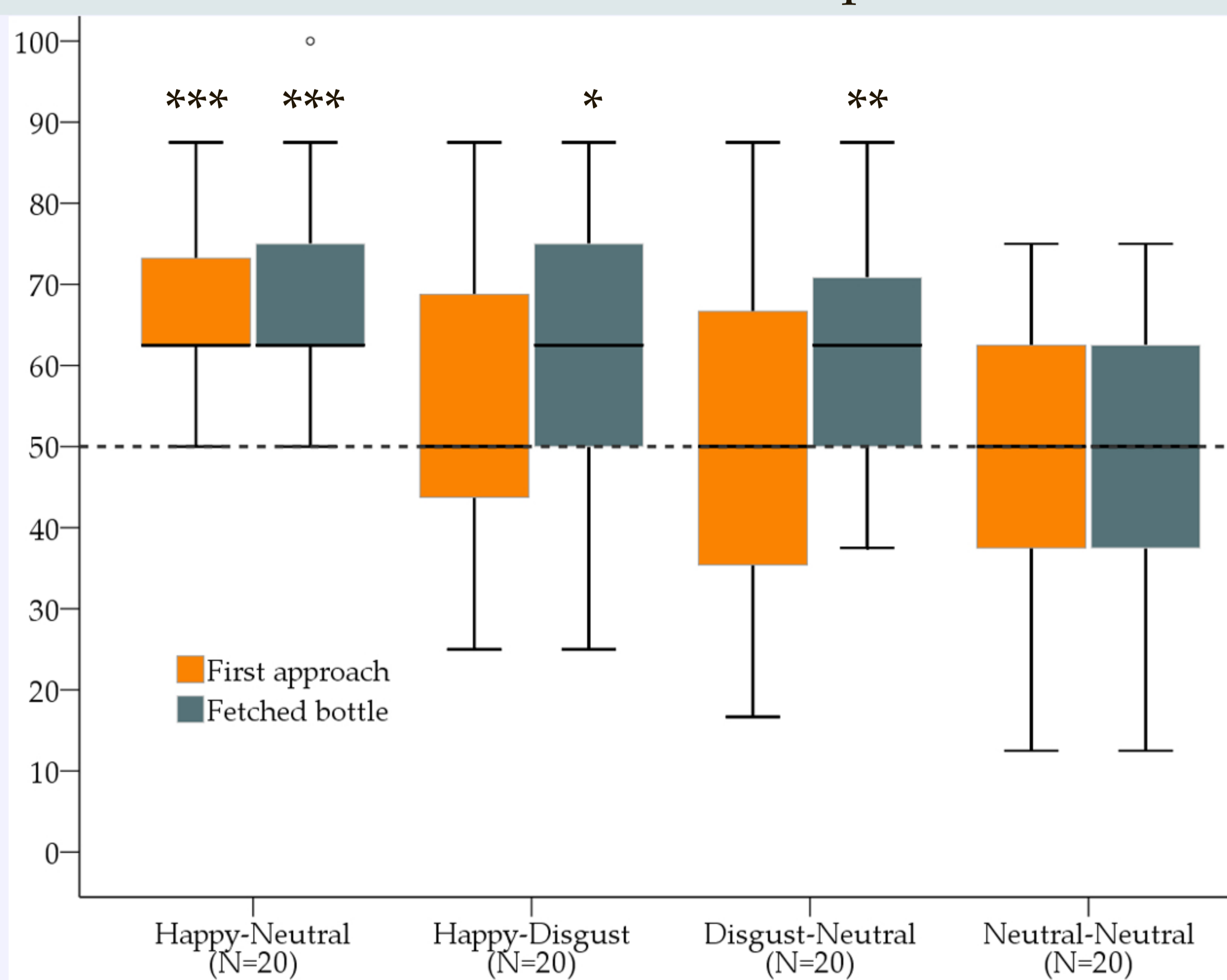


Fig. 1 Performance in the four conditions, assessed by the object the dogs approached first and the object the dogs fetched to the owner. Dotted line represents chance level.

Wilcoxon Signed Rank test, * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Discussion

According to the results, the dogs are able to recognize the valence of the human happy and disgust emotions, and show preference for the more positive one over the alternative when making a choice.

They also get their own interest (indicated by what they first approach) over by fetching the owner's preferred item.

References

Buttelmann, D, Tomasello, M 2012 Can domestic dogs (*Canis familiaris*) use referential emotional expressions to locate hidden food? *Anim Cogn* 16: 137-145.
Silva, K, de Sousa, L 2011 'Canis empathicus'? A proposal on capacity to empathize with humans. *Biol Lett*, 7: 489-492.

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