Last but not least

The discrimination of cat odours by humans

Abstract. We explored the ability of humans to identify individual cats by smell. Twenty-five cat owners were required to indicate which of two odours (one belonging to their own cat and one belonging to an unfamiliar cat) smelt the strongest, most pleasant, and which belonged to their own cat. Only thirteen (52%) of the participants were able to recognise the odour of their own cat.

A wide variety of sensory modalities can be employed to recognise, and discriminate between, others, including vision, olfaction, and audition (for review see Porter 1991). The extent to which each of these faculties is employed for recognition purposes depends largely upon the species concerned and the type of information available at the time.

It has recently been discovered that humans can discriminate between members of other species using their sense of smell. Wells and Hepper (2000) discovered that owners can accurately identify their pet dog by smell when tested on a two-choice discrimination task. The authors speculated that daily exposure to the dog may result in owners unconsciously learning the smell of the animal.

Whether or not humans can discriminate between the odours of other pets remains unknown. For the purpose of this study, we thus examined the ability of twenty-five owners (thirteen males, twelve females) to identify individual cats (*Felis catus*) by smell.

Each owner was instructed to collect his/her cat's odour by rubbing a $1 \text{ m} \times 1 \text{ m}$ blanket back and forwards over the animal's back 50 times. The blanket was then placed into a plastic food-storage bag, sealed, and returned to the experimenter.

For the purpose of the experiment, each subject was presented with two blankets, both in their respective bags. One of the blankets was impregnated with the odour of his/her own cat; the other was impregnated with the odour of an alien cat. The unfamiliar cat chosen was as similar as possible to the participant's own cat in terms of breed and sex, and was within 18 months of the participant's cat's age. The subjects were required to sniff the two blankets for as long as desired and to tell the experimenter which of the odours they thought: (i) smelt the strongest, (ii) smelt the most pleasant, and (iii) belonged to their own cat. Half of the participants were presented with their own cat's blanket first, and half with the unfamiliar cat's blanket first.

Analysis revealed that the participants performed no better than one would have expected by random chance on the discrimination test, with only thirteen (52%) of the twenty-five participants accurately choosing which of the odours belonged to their own cat ($p = 1.000$, binomial test). Participants showed no significant bias in which of the blankets they thought smelt the strongest ($p = 0.690$, binomial test) or the most pleasant ($p = 0.424$, binomial test). There was no significant association between the participants' ability to correctly identify their own cats and which of the blankets they thought smelt the strongest ($p = 1.000$, Fisher's Exact Test), or the most pleasant ($p = 0.688$, Fisher's Exact Test). The participants' sex was not significantly associated with their performance on the discrimination tasks ($p = 0.690$, Fisher's Exact Test).

The findings from the study indicate that owners cannot accurately identify their pet cats by smell. These results vary from those reported by Wells and Hepper (2000) who indicated that owners can accurately identify their pet dogs using olfactory cues.

One possible explanation for the discrepancy in results between the present study and that by Wells and Hepper (2000) relates to the strength of odour emitted by cats and dogs. On the whole, cats tend to invest more time and energy in grooming themselves than their canine counterparts. The two species thus emit different levels of commensial microbial flora. The stronger odour of dogs is likely to provide owners with considerably more olfactory information than that of cats, thus perhaps explaining the poorer ability of the owners in the present study to accurately recognise their pets using odour cues.

Overall, the results from the present study add to the limited existing information on the ability of humans to discriminate between other species by using their sense of smell. Further work is now needed to explore what mechanisms mediate the ability of humans to discriminate between other non-human species by using olfactory cues.

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References
Porter R H, 1991 "Mother–infant recognition", in *Kin Recognition* Ed. P G Hepper (Cambridge: Cambridge University Press) pp 413–432

Wells D L, Hepper P G, 2000 "The discrimination of dog odours by humans" *Perception* **29** 111–115

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