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Psychology

I know you are calling me! – Fickle cats know their own names

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It is a common belief that most domestic cats do not respond to their names, unlike domestic dogs. But with careful behavioral experiments, it becomes clear that cats can recognize their own names from other words and other cats' names, even when they do not show obvious social response to being called.

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You may wonder if your cat recognizes its own name. You may have even tried to call the cat's name and some other words to see if it responds. Many people believe cats don't recognize their own names because they tend not to show an obvious response to human speech. Why are they so fickle?

Domestic cats originated from Libyan wildcats which began to cohabit with humans about 9,500 years ago. One striking difference in the process of domestication between cats and dogs is that, unlike cats, dogs were domesticated as working animals meant to follow human orders. By contrast, cats were likely accepted by humans for capturing vermin such as rodents in granary, and were domesticated without artificial selection. This may have resulted in cats being less responsive to human speech than dogs.

In the last decades, multiple studies have focused on the evolution of social intelligence in domestic dogs. Dogs are skillful at reading human communicative gestures, such as pointing and looking in a specific direction. Dogs can differentiate a person's level of attention and distinguish smiling faces from blank expressions. They are also capable of using human facial expressions, for example in response to finding food. Extensively trained dogs can differentiate 200–1000 human words or labels.

Cats have been less extensively studied. It may due to their origin, territoriality and their fickle character; Taking cats from a home to a laboratory to

participate an experiment disrupts their natural behavior. In addition, it is difficult to train cats using food as an incentive. These characteristics make them difficult to study.

To overcome such difficulty, we conducted a home-visit experiment and analyzed natural behavior to investigate name recognition in cats. Cats show relaxed, natural behavior in their home. As a result, we can detect minor changes in their behavior. For our experiment, we recorded the owner saying four general nouns and the test cat's name or the names of 4 other cats from the same household. These were played back from a speaker to test the cat's response. Typically, repeated presentation of a stimuli causes weakening of the response. It is called "habituation". In this experiment, cats were presented with a repeated presentation of general nouns or cohabit cats' names, in an attempt to habituate them. After this occurred, we played the test cat's name. If cats can distinguish their own names from the preceding sounds (nouns/cohabit cat names), the test cat's response is expected to rebound (dishabituation). But if not, the cat's response will still be weak.

We found that cats that were successfully habituated to general nouns or cohabit cats' names showed rebound of response to their own names. This means cats recognize their own names as a different category from general nouns/cohabit cats' names. They continued to respond to their own name by orienting response (ear moving or head moving), similar to their unhabituated-response to nouns/cohabit cats' names. However, most of cats did not show any social response, such as vocalizing, tail wagging, or moving toward sound source, toward their own names.

We repeated the experiment using a stranger's voice with similar results; the test cat recognized its name as different from other nouns/names. However, when we conducted the same experiment in a cat café, cats did not distinguish cohabit cats' names and own names, suggesting social environments (number of visitors, style of interactions with humans, etc.) might affect cats' ability for name recognition.

Our study unveiled cats' ability to distinguish their own names from general nouns/cohabiting cats. This ability is acquired through daily interaction with their owners without specific training. Owners frequently call their cats' names while performing a pleasant action (feeding, petting, etc.) or unpleasant action (taking them to a hospital etc.) Cats might learn to distinguish their names from human speech by associating these sounds with the accompanying actions, and then generalize this knowledge.

As noted, a cat's ability to communicate with humans has not been well studied. This work sheds new light on the ability of cats to communicate with humans. Additional studies of cat–human communication could potentially enhance the welfare of both cat-lovers and cats.