

Baboons can learn basic skills of human reasoning

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Philosophers they are clearly not, but baboons may be capable of abstract thought. With a painstaking education, the monkeys can be taught to make analogies, researchers have found.

The discovery, a first in a non-ape species, may force us to re-evaluate our perception of animal intelligence.

Researchers in the US and France trained two adult guinea baboons to recognise grids of pictures showing images such as a light bulb, an arrow or the sun. First, the monkeys, a male and a female, were shown a four-by-four grid of either 16 different pictures, or 16 identical images. Then the team presented the baboons with two new grids laden with new images. Again, one had 16 different pictures, and one had 16 replicas.

The challenge for the baboons was to recognize the new grid that was most like the one that they were originally shown. The monkeys used a special joystick to select the computerised grids, and were rewarded with a banana pellet for making the correct choice.

Choosing the right grid required the baboons to make an analogous link between two similar, but different sets of pictures. The ability to form an analogy is believed to be at the foundation of human reasoning and abstract thought.

Trying times

After almost 5000 painstaking trials, the male baboon learnt to spot the correct grid four times out of five. The female baboon reached a similar level of competence after just over 7000 trials.

As a control, the research team, led by Joel Fagot of the National Center for Scientific Research in Marseille, compared the baboon's ability with that of a man and a woman. The two people took less than 100 trials to figure the task out, even without the lure of a banana pellet to focus their minds.

Discerning relationships "may not be an intellectual forte" of baboons, the scientists admit, but they can do it. The finding is important because it suggests that non-ape species are capable of this type of thinking.

Chimps have proved themselves capable of such a task, but they are part of the same family that humans evolved from. Baboons, on the other hand, belong to a branch of the primate family that split off from the human antecedents over 30 million years ago.

Pigeon proposal

Similar experiments in the past have consistently failed in non-ape species, but the researchers think that they may have used too few images to draw a clear result. In further experiments with their baboon and human subjects, the team found that if they reduced the number of images used in their grids, the baboons' accuracy decreased.

Fagot's colleagues, Edward Wasserman of the University of Iowa in Iowa City, and Michael Young of Southern Illinois University at Carbondale, now intend to see if pigeons can be trained to perform the task.

"We've been putting it off because we're not sure we have the patience," says Young. "It could take a year." Fagot is planning to see if preverbal children fare any better than baboons.

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