Kirchhofer KC, Zimmermann F, Kaminski J, Tomasello M (2012) *Dogs (Canis familiaris), but Not Chimpanzees (Pan troglodytes), Understand Imperative Pointing.* PLoS ONE 7(2): e30913. doi:10.1371/journal.pone.0030913

Introduction. It is accepted that chimpanzees have some kind of primitive theory of mind, i.e. they can understand goals and intentions that accompany simple behavior of others. They fail, however, in understanding the human pointing gestures. This is despite the fact that they can fallow the gaze of humans to outside targets. Several studies have found that more successful in understanding this kind of communicative gestures are human infants and... dogs. This study aims to compare chimpanzees and dogs in doing so.

Methods and materials. 23 chimpanzees and 32 dogs were tested, but 3 apes had to be excluded from the sample due to their unwillingness to cooperation. The authors used modified version of so-called object choice task. Subjects of study were placed in the room with 2 similar but not identical objects (e.g., rope and hose or sponge and leather case). Experimenter requested one of these objects using pointing gesture accompanied by imperative command ('Give it to me!'), serious facial expression and gaze alternation. The test were held in two settings – with the Plexiglas barrier between the subject and experimenter and without it.

Results. The authors collect the number of correct choices in 2 tables (accordingly to chimpanzees and dogs) and show the comparison with chance for each species on the bar graph. Chimpanzees did not retrieve the correct object significantly differently from the chance level (0.5), while the dogs chose the right target above chance levels ($p = 0.711$ and $p<0.0001$ respectively). Dogs with barrier between them and experimenter were less successful, but even then they chose the correct object significantly more often than the chimpanzees.

Discussion. The study can be added to the growing body of literature which shows that dogs outperformed chimpanzees in an object choice task. It was, however, fairer than previous ones (Plexiglas barrier in case of both species) and proved that the result remain when the target is not interesting for the subjects (it is not the hidden food). Moreover, it excluded the hypothesis of ambivalent reference as a cause of chimpanzees' difficulties (they did not need to infer that it is not cup, which is pointed, but food in the cup). The authors recall some findings of Mulcahy and Call who argued that that chimpanzees did better in an object choice task when the targets were far apart as well as some evidences that they are also more skillful in the competitive situations. The result suggest that understanding *intentions* is something different that understanding *communicative intentions*. The authors propose Tomasello's hypothesis that in communicative context understanding of two levels of intentions is needed. Namely, to understand that you are asked to attend to a particular referent, and then to figure out why you are supposed to do so. Dogs' special receptiveness to human communication could be explained as an adaptation to life with humans, influenced by selection processes during domestication.

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