SHALL I POINT IT OUT?

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1. Ostensive Communication

A great debate exists when it comes to ostensive (intentional) communication and non-human primates. Some argue that non-human primates likely lack ostensive communication or are at least very limited in it (Scott-Phillips, 2015). Scott-Phillips (2015) contends that this limitation is due to great ape communication relying on a code model in contrast to human communication's ostensive-inference model. Still, others argue that the behaviors that suggest ostensive communication in human research exist in apes as well, including eye contact, and goal-directed, intentional communication (Moore, 2015).

Previous research has found bonobos in environments with rich language exposure are quite successful at following pointing gestures (Lyn et al., 2010). The bonobos studied here are unique in their high levels of exposure to natural English and lexigrams (Savage-Rumbaugh, 1993). The bonobos have also successfully passed previous pointing tests, likely due to daily pointing exposure. These environmental conditions gave Kanzi and the other bonobos a possible advantage in displaying their comprehension of ostensive communications.

Here, we separated the act of pointing into two components: the point mechanism (the gesture) and the ostensive communication (eye contact and gaze direction) in the hopes of exploring whether the bonobos understand pointing as a simple association, or as we hypothesize, they understand the communicative intent, including the ostensive cues that accompany the act itself.

2. Methodology

The present study used an object-choice task in which six bonobos were each tested on contralateral point gestures in five conditions in which the eye gaze and attention of the researcher were manipulated. Subjects were presented with two paper bags in front of their home enclosure, one which contained a small food reward. A researcher pointed to the baited bag contralaterally, focusing attention as described by each condition: (1) Contralateral (2) Drop Gaze, (3) Object-Ape, (4) Gesture-Object and (5) Gesture-Ape. For the Contralateral condition, the researcher's attention shifted equally between the ape, the object, and the gesture. For the Drop Gaze, attention focused on either the gesture or the floor. For the remaining conditions (Object-Ape, Gesture-Object, and Gesture-Ape), attention shifted equally between the two targets. The trial was successful when the ape pointed to the correct object. The trial was unsuccessful when the ape failed to point within 15 seconds or pointed to the incorrect object.

3. Discussion

Our results support previous findings that language enculturated bonobos have some cognitive capacity for understanding ostensive communication (Lyn et al., 2010). Aligning with the hypothesis, the bonobos with a more extensive history of language exposure performed better than those with less exposure (Kruskal-Wallis test, chi-square = 54.8, df = 5; $p < .001$). Mali, who has had limited language enculturation, scored much lower than the other apes on all conditions (Dwass-Steel-Critchlow-Fligner pairwise comparisons for each ape, For each $p < .001$). Additionally, in contrast to pilot data, apes performed equally well on the drop-gaze condition as the more ostensive conditions, though results were not significant (Kruskal-Wallis test, chi-square = 5.90, df = 4; $p = 0.207$). This discrepancy may be due to altered methodologies, underscoring the need for care when designing studies of this nature. While some argue that ostension cannot be separated from the communication act itself, that they are inherently the same thing (Heintz & Scott-Phillips, in press), it is our plan to continue attempting to piece apart these components in further studies.

References

Heintz, C., & Scott-Phillips, T. (in press). Expression unleashed: The evolutionary and cognitive foundations of human communication. Behavioral and Brain Sciences.

Lyn, H., Russell, J.L., & Hopkins, W.D. (2010). The impact of environment on the comprehension of declarative communication in apes. Psychological Science, 21(3), 360-365.

Moore, R. (2015). Meaning and ostension in great ape gestural communication. Animal Cognition, 19, 223-231.

Savage-Rumbaugh, E.S., Murphy, J., Sevcik, R.A., Brakke, K.E., Williams, S.L., & Rumbaugh, D.M. (1993) Language comprehension in ape and child. Monographs of the Society for Research in Child Development, 58(3-4), 1-222.

Scott-Phillips, T. C. (2015). Nonhuman primate communication, pragmatics, and the origins of language. Current Anthropology, 56(1), 56-80.