

Signal like you mean it: New study shows orangutan gestures carry specific intentional meanings

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Pongo pygmaeus (orangutang). Credit: Malene Thyssen, via Wikipedia

Great ape gestures have intentional meaning and are made with the expectation of specific behavioral responses, according to Erica Cartmill and Richard Byrne from the University of St. Andrews in the UK. The study of meaning in animal communication takes a significant step forward with the authors' new systematic approach to assessing intentional meaning in the gestural communication of non-humans, applied here to a group of orangutan gestures. Their work is published in

Springer's journal *Animal Cognition*.

The first section of this paper sets out their proposed method (goal-outcome matching) which takes into account the apparent aim of the gesturing individual as well as the reaction of the recipient that apparently satisfies the signaller. Where the two match consistently, across examples of a particular gesture, an intentional meaning is identified for that gesture.

The authors then applied this approach to a sample of [orangutan gestures](#) to identify gestures that are used predictably to induce specific reactions and to begin a lexicon of orangutan gestures and their intentional meanings.

The researchers observed 28 orangutans in three European zoos - Twycross Zoo in the UK, Apenheul Primate Park in the Netherlands and Durrell Wildlife Conservation Trust in Jersey - for nine months. They identified 64 gesture types, 40 used frequently enough to be analyzed for meaning. These 40 gestures were used predictably to achieve one of six social goals: to initiate an interaction (contact, grooming or play), request objects, share objects, instigate joint movement (co-locomotion), cause a partner to move back, or stop an action.

The researchers then tested their analysis by examining what the gesturing ape did when the response to its gesture did not match the gesture's meaning, as deduced by the goal-outcome matching method. They found that the apes were more persistent with their gestures when their partner did not respond in the intended way.

The authors conclude: "Orangutan gestures are made with the expectation of specific [behavioral responses](#) and thus have intentional meaning as well as functional consequences. The level of specificity we were able to identify in the intentional meanings of orangutan gestures

resulted from our novel use of goal-outcome matching as a means of incorporating signaler intentions into the analysis of signal meaning. When paired with a high frequency of intentional use, goal-outcome matching is a strong tool for identifying intentional meaning."

More information: Cartmill EA & Byrne RW (2010). Semantics of primate gestures: intentional meanings of orangutan gestures. *Animal Cognition*; [DOI:10.1007/s10071-010-0328-7](https://doi.org/10.1007/s10071-010-0328-7)

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