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Recipient directed food calls in chimpanzees: precursors for triadic communication?

The question whether non-human primates can vocalize to inform receivers about external entities is highly debated. Such intentional triadic communication would represent an important element of continuity with human language. For this type of communication to occur, at least four different behavioural or cognitive elements are required: (1) production of a functionally referential call; (2) voluntary control over call initiation; (3) direction of calls at specific receivers and (4) understanding and manipulation of the receivers' mental states. Previous studies on a variety of species have shown that primates may have some of these necessary elements. However, if these are to act as prerequisites for intentional triadic communication, they need to occur within a single calling system, rather than across different contexts and species. In this study we addressed this issue with wild chimpanzees and experimentally tested whether functionally referential food grunts were produced selectively, and whether they were directed at specific individuals. Using a playback paradigm, we presented silently feeding male chimpanzees with individually distinctive arrival pant hoots from familiar individuals and recorded their reactions. Our results showed that subjects were significantly more likely to respond with food calls to the simulated arrival of individuals with whom the caller had high rather than low levels of friendship and where there was a large rather than small positive dominance rank difference between the individuals. We concluded that chimpanzee food grunts are not simply reflexive responses to food, but can be selectively directed at socially important individuals.