COOPERATIVE COMMUNICATION: WHAT DO NONHUMAN ANIMALS HAVE TO TELL?

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Human language is thought to be a fundamentally cooperative enterprise, involving fast-paced and extended social interactions (Grice, 1957; Sperber & Wilson, 1986). Although it is still highly debated how human language originated, it has been suggested that it evolved as part of a larger adaptation of humans' species-unique forms of cooperation (Levinson, 1995; Tomasello, 2008). Earliest cooperative interactions can be observed around the age of 12 months, when human infants start to engage in turn-taking routines with their caretakers involving distinct gestures such as *showing, offering, giving* (for example, food, objects), and *pointing* to coordinate attention towards a social partner and an object of mutual interest. Intriguingly, Levinson and Holler (Levinson & Holler, 2014) thus suggested that the apparent gulf between animal and human communication may be bridged by looking for precursor adaptations to human language in turn-talking interactions and gestural signalling. Although, our closest living relatives, bonobos (*Pan paniscus*) and chimpanzees (*Pan troglodytes*) communicate via highly sophisticated gestural exchanges (e.g. Fröhlich, Wittig, & Pika, in press; Pika, Liebal, & Tomasello, 2005) and show cooperative abilities under experimental (Hare, Melis, Woods, Hastings, & Wrangham, 2007; Melis, Hare, & Tomasello, 2006; Pika & Zuberbühler, 2008) and/or wild conditions (Boesch & Boesch-Achermann, 2000; Mitani, 2009), studies into cooperative communication skills are relatively rare. For instance, by drawing on a conversation analysis framework Rossano (2013) showed that two mother infant dyads of captive bonobos used gesture sequences that strongly resemble the structure of turn-taking sequences of social action in human conversation. They utilized cooperative adjacency-pair structures and communicated at communication tempi similar to the timing of ordinary human conversation (Stivers et al., 2009).

The aim of the present paper is twofold: First, I aim to revisit the claim that communicative interactions of nonhuman animals lack the cooperative nature of human communication. Second, I try to encourage a critical evaluation of methods commonly used in the field of gesture research to draw inferences about similarities between human and nonhuman animal signaling to enable a higher sensitivity to the social characteristics and/or ecology of a given species (see for recent developments in other areas of cognitive ethology, Hare, 2001). To do so, I will (a) provide an overview of the state of the art, (b) present newest

data on collaborative communication in nonhuman animals, and (c) develop a framework, which could be used to predict patterns of collaborative communication in nonhuman animal species and to facilitate more systematic investigation.

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