

From Call-ocations to Combinatorial Communication: Linguistic Perspectives on Primate Vocal Systems

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As linguistics shifted toward new theoretical approaches to language structure (Chomsky 1957), researchers also became increasingly interested in the patterning of non-human animal communication as potential precursors to structured language (e.g., Thorpe 1958, Marler 1998). Specifically, the comparison of non-human animal communication systems to language was leveraged as a fruitful approach to demonstrate shared ancestry or the nature of selective pressures that may have shaped the evolution of language.

Indeed, especially in later years, studies began to highlight a propensity for non-human animals to combine context-specific calls to form potentially structured sequences (e.g., Arnold & Zuberbühler 2006, Suzuki et al. 2016). Interestingly though, most examples of call combinations in non-human animals were proposed to be limited to the combination of only two calls, which contrasts dramatically with the open-ended hierarchical structuring of language. This led to the assumption that there still remains a marked disparity between the combinations highlighted in non-human animals and the intricate syntactic organisation of language (Hurford 2012, Miyagawa & Clarke 2019).

However, more recently, advances in the research of non-human animal communication are reshaping long-standing assumptions about the uniqueness of language. For example, a fast-growing body of evidence reveals that non-human primates combine calls in more complex ways than previously assumed.

This talk will focus on call combinations in common marmosets (*Callithrix jacchus*), where stochastic modelling of spontaneous vocalisations suggests that marmoset call combinations are not strung together like beads on a string but are characterised by a degree of hierarchical structure (Bosshard et al. 2024). Moreover, this talk addresses the largely unexplored question of whether non-human call combinations exhibit compositional meaning in a manner comparable to language (Partee 1984). To explore this, we drew on the observation that the transition times and sequencing probabilities vary substantially across call combinations, raising the possibility that these patterns are shaped by meaning or contextual factors analogous to those implicated in linguistic composition (e.g., Seifart et al. 2018, Giglio et al. 2024).

More broadly, this talk explores the possibility that the comparative study of animal communication might offer a powerful testing ground for theories of combinatorial structure, meaning composition, and language evolution.

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