

CALL COMBINATIONS IN CHIMPANZEES

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A key feature of language often argued to distinguish it from other animal communication systems is its compositionality: meaningful words are combined together into larger structures with derived meaning (Hurford, 2011). Despite its significance, we know very little regarding how unique this capacity is to humans or the evolutionary progression of this trait. By searching for core features of language, such as its compositionality, in the communication systems of our closest-living relatives, particularly the apes, it is possible to shed light on whether the components of language are *de novo* evolved traits in humans or whether they have their origins rooted in the primate lineage. Using a high-density data approach, we are currently investigating the forms of vocal combinatorial structures in chimpanzees (*Pan troglodytes schweinfurthii*). Preliminary data collected in the Budongo forest, Uganda, indicates that call combinations represent 13% of the total vocal production in chimpanzees and the context of production is a good predictor of the call types combined. Social contexts, in particular, seem to elicit the highest proportion of call combinations, supporting the hypothesis that sociality might be an important driver for the evolution of combinatorial communication systems (Collier, Townsend, & Manser, 2017). Moreover, predator presentations revealed that chimpanzees combine calls (alarm-hoos with waa-barks) when encountering a snake, specifically when other individuals are present, potentially to recruit group members in a dangerous situation. Ongoing playback experiments aim to further investigate the meaning and function of this call combination and to test whether chimpanzees process it

as a compositional-like structure. Preliminary analyses of responses to playbacks suggests the alarm-hoo-waa-bark combination is meaningful to receivers and, critically, related to the individual meaning of the comprising calls.

Ultimately, this work will help elucidate whether one of the core building blocks of language, compositionality, also exists in the communication systems of our closest relative and therefore is evolutionarily more ancient.

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