

Non-human primate language displays semantic combination.

Putty-nosed monkeys, a primate species, use semantic combination in their calls.

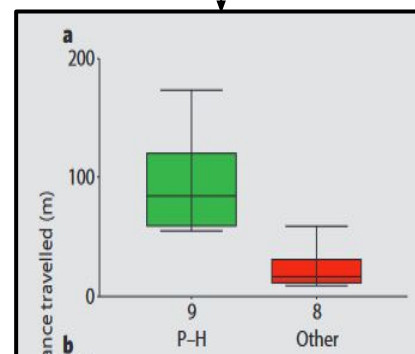
The P-H sequences produced by putty-nosed monkeys have a particular meaning that combines the meaning of the “pyow” and “hack” calls.

“Pyow” means “leopard” and “hack” means “eagle”.

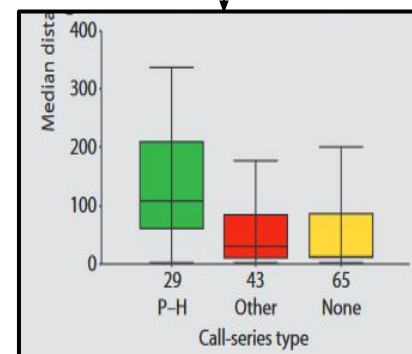
P-H sequences mean “let’s move”.

Eckardt, W. & Zuberbühler, K. Behav. Ecol. 15, 400–411 (2004).
Arnold, K. & Zuberbühler, K. Anim. Behav. (in the press).
Pohlner, Y., Arnold, K. & Zuberbühler, K. Behav. Ecol. Sociobiol. (submitted)

Call series experimentally elicited by leopard growling: the group travelled significantly farther after hearing call series that contained at least one pyow–hack (P–H) sequence (n=9) compared with the distance moved in response to all other sequences (n=8).



Naturally occurring call series: the habituated study group travelled significantly farther following call series containing at least one P–H sequence (‘P–H’; n=29) compared with the distance moved in response to other series that included no P–H sequences (‘other’; n=43) or when there were no calls made by the male (‘none’; n=65).



DEFINITIONS

pyow: a type of vocalization produced by putty-nosed monkeys, primarily in the vicinity of leopards

hack: a type of vocalization produced by putty-nosed monkeys, primarily in the vicinity of crowned eagles

P-H sequence: a type of vocalization produced by putty-nosed monkeys composed of one to three pyows followed by up to four hacks

ASSUMPTIONS

Vocalizations composed of multiple calls are interpreted in a way such that word order is relevant. Vocalizations composed of some number of hacks followed by some number of pyows (a H-P sequence) differ in meaning from that of a P-H sequence.

The P-H sequences are the only commonalities between the call series made by adult males of the monkey groups.

OBJECTIONS

While still fundamentally composed of pyows and hacks, a different sequence that the call series have in common may be the trigger for movement.