

## **Meet the neighbours: comparing chimpanzee and bonobo behaviour.**

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KG: We're both primatologists, but I study bonobos and you study chimpanzees. I've always thought I'd much rather be a female bonobo than a female chimp, or a male chimp for that matter! Bonobo females have it pretty good - they eat first, decide when to travel, back each other up in a fight against males. Of course, there's a bit of variation depending on their place in the hierarchy but female bonobos seem to generally be much more sociable and central. What's your impression from the chimp side?

CH: You're right, bonobos have life pretty well worked out! Especially the girls. Mature male chimpanzees outrank everyone else in the social hierarchy, and they can be extremely aggressive, including killing individuals in their own group. So there is a perception that female chimpanzees have less agency in what goes on in their own or the community's day-to-day life. But that's definitely not the complete picture.

Females regularly rebuff the sexual attentions of males they're not interested in - from giving little more than side eye to the teenagers trying out their first gestural 'pick up lines' to (occasionally) chasing a high rank male down a trail with his (proverbial!) tail tucked between his legs. Some of it is more subtle manipulation: chimpanzees 'exaggerate' the aggression they're experiencing depending on who might overhear their screams, and they seem to avoid using signals that reveal their identity when there might be eavesdroppers nearby.

KG: Yes! What I really love about comparative work is getting to work closely with two or more species and seeing where the variation is. Bonobos and chimpanzees both get painted with broad brushes, and it's so satisfying to pick apart what the similarities and differences really are and where they're coming from. Take gestures, for example (of course that's what two gesture researchers would say!). Bonobos and chimpanzees share about 90% of gestures and many of the gestures share the same meanings. But if you listen to a bonobo call and a chimp call they sound really different. It's kind of odd. If we were expecting any differences in gestures too, where might we find them?

CH: I know! We recently did an analysis where we explored if the overlap in the gestural repertoires existed only because all apes have a similar body plan and use all possible movement + limb combinations. But we found that chimpanzees use a tiny fraction of the potential gesture available to them - just 12%, which makes the almost perfect overlap with bonobos' gestures even more striking. There's so much space for more variety - but they either can't or don't need to exploit it for communication. But if we're looking for differences we might learn something by looking at human speech. Different languages and dialects are

incredibly varied and diverse, but they're based on the use of a universal shared set of phonemes. These are then recombined, or expressed in very different ways, to produce languages as different as Japanese and French.

Something that I think we're still coming to terms with as ape researchers is the massive variation within the species we study. There's no such thing as a 'chimpanzee typical' strategy towards even important social behaviour like negotiating rank or sex. Subspecies, communities, generations, and individuals all differ. You can take one chimpanzee and bonobo group and they'll look very different - a species difference? But switch out the chimpanzee group for a different one and suddenly they're much more similar. I know chimpanzee populations are larger and occupy more varied habitats right across east to west Africa, but do you think we'll see similar group differences in bonobos as more and more are studied?

KG: Yeah, inter-group differences for bonobos is a definite possibility. I worked with two neighbouring groups of bonobos who encounter somewhat regularly, and females immigrate between groups, so you might expect that their gesture repertoires would be similar. It would be incredible to compare the gesture repertoire from Wamba with that at LuiKotale. These are currently the two best established fieldsites for bonobo research, and are the best candidates for comparison. But Kokolopori is another fieldsite where the bonobos are becoming better habituated too, so soon there might be opportunities for a large scale group comparison.

Bonobos actually have a fair bit of habitat variation, from those living in deep primary forests; to those who live closer to human communities that experience more secondary forest; to those living in forest-savannah mosaic habitats. We are just starting to learn about the behaviour of bonobos in savannah mosaic habitats near Malebo and Lac Tumba. For gesture research, it could be particularly interesting to ask whether in more open savannah habitat where visibility is better they use different gestures than in forests of varying density. These large-scale comparisons require so much longterm data from so many places that it's impossible for you and I to collect everything - that's why international collaboration is so important to scientific research!

CH: Awesome! I didn't realise that there were also bonobos with some savannah habitat – could definitely have big implications for their communication. All vocalizations are audible, but gesture gives you the option to select signals that share information in different – or multiple - modalities (hearing, sight, touch). So many fun questions still to explore! I love that new technology is allowing researchers from sites around the world to work together and solve these really big puzzles (and it's a good excuse to spend more time that I should on Twitter..). Bye for now - Pant hoooots!

KG: Bye from me too! \*branch drag into the distance\*