

Human-ape links heard in laughter

Similarities between laughter of tickled apes and humans mirrors genetic ties between species.

Lucas Laursen

Human laughter is rooted in the emotional displays of the common ancestor we share with apes, suggests an analysis of the vocalizations of tickled juvenile apes and humans.

Human speech is unique among animals, but researchers have long debated how our laughter might relate to similar vocalizations made by other primates. Scientists from Charles Darwin to Dian Fossey, author of *Gorillas in the Mist*, have compared the laughter of non-human primates with that of humans, and found similarities but also important differences. Chimpanzees emit more of a panting laughter, for instance, whereas humans generally use their voices to laugh while breathing out.

A team led by psychologist Marina Davila Ross of the University of Portsmouth, UK, undertook the task of tickling 25 young apes and humans, and recorded the resulting laughter (see [video](#)). They report this week in *Current Biology* that similarities between the acoustic characteristics of each species' laughter roughly reflects their genetic relatedness¹.

Ticklish problem

The study brings "state-of-the-art audio analysis" to the problem, and helps to clarify how ape laughter and vocal production evolved, says psychologist Robert Provine of the University of Maryland in Baltimore County, who was not involved in the work.

"Laughter is important to study because it's a universal part of human language and a tool [with which] to study vocal evolution," he adds.

Davila Ross and her co-workers tickled a total of 21 infant and juvenile orangutans, gorillas, chimpanzees and bonobos, as well as one siamang, and three human infants. Laughter was scored according to 11 acoustic variables, including the duration and pitch of vocalizations, the time between them, and whether the animals were breathing in or out while vocalizing.



Tickling orangutans sheds light on the evolution of laughter.

Davila Ross, M.

"Particularly the gorilla and the bonobo could produce [human-like] sounds while breathing out for more than 10 seconds," says Davila Ross. The more distantly related orangutan and siamang's laughter, meanwhile, was correspondingly distinct.

The researchers were surprised when they found that some of the apes' laughter lasted for more than one breathing cycle, says Davila Ross. The finding contradicts one

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Marina Davila Ross and Karla.

Davila Ross, M.

explanation for why human laughter and vocal production differs so much from that of apes, namely that non-human primates, which walk on all fours, breathe in synchrony with their walking, whereas bipedal humans breathe independently of their walking.

Davila Ross hopes phylogenetic approaches such as this one will be used in further studies of the evolution of vocalizations. "I'm interested in learning more about how these vocalizations are being used in social play," she says.

"They're finding evidence of chimp voicing and more freedom for ape sound production," adds Provine. "I see that as a friendly addition to the existing evidence."

References

1. Davila Ross, M., Owren, M. J. & Zimmermann, E. *Curr. Biol.* doi:10.1016/j.cub.2009.05.028 (2009).

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Great job! =)but you should enlarge the range of your "test subjects"...

#7525

I was interested in Lucas Lauren's report on how primates laugh. As important, however, is why they **#7578** laugh: its evolutionary significance? Laughter clearly evolved for defusing aggression. It is submissive and is equivalent to rolling over in dogs, for example. Submission, then, is a form of communication, a language, and is important within social groups. Verbal language appears to have evolved for exploiting individuals within social groups. Contrary to the popular belief it is not for cooperation. Sociobiologically language is self interested. The exploited are protected by the exploiters. Social politics within groups will have lead to increased complexity of languages via an arms race. Laughter, then, may have given rise to language. It is well developed in juveniles and since humans have neotic characters language followed. The large cerebral capacity of hominids reflects the evolution of exploitation within social groups. Peter Gibson Institute of Evolutionary Biology, University of Edinburgh

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