

Reply to Henrich and Silk: Toward a unified explanation for apes and humans

We appreciate the methodological concerns of Henrich and Silk (1), which resemble those of Jensen et al. (2). Both critiques focus on the lack of refusals by the responders in our ultimatum game (UG) (3), an option on which the subjects were never trained. As discussed previously (4, 5), we fail to see how this lack of refusals would invalidate the behavioral change measured in the proposers. Both the children and the chimpanzees behaved far more equitably when a partner was actively involved in the task. It is this dramatic behavioral shift from selfish to equitable, which was highly significant in each of the four tested chimpanzee pairs as well as in the children, that begs an explanation. Unless ad hoc speculations about confusion or lack of understanding can somehow be substantiated, we prefer an explanation that is the same across all UG subjects: apes, children, and human adults: If equitable choices are interpreted as a sign of “fairness” in human studies, why not in those of apes? Thus, if the near absence of rejection by young children is thought to be a matter of impulse control rather than a lack

of distinction between fair and unfair outcomes (6), the same perspective may apply to apes.

As Henrich and Silk (1) note, UG offers vary across human cultures. This finding is indeed fascinating and highlights how much culture influences behavior. If the chimpanzees and children in our study performed like Western undergraduates (i.e., favoring 50/50 splits over smaller offers), this is likely because of their choice limitations. Our subjects were given only two choices: a 17% or a 50% offer. We were unable to test the entire array of possible reward divisions, which if done, might have produced a different outcome. We would of course be highly interested to see how adult humans, Western or not, would perform in our nonverbal version of the UG.

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1 Henrich J, Silk JB (2013) Interpretative problems with chimpanzee ultimatum game. *Proc Natl Acad Sci USA*, 10.1073/pnas.1307007110.

2 Jensen K, Call J, Tomasello M (2013) Chimpanzee responders still behave like rational maximizers. *Proc Natl Acad Sci USA* 110(20):E1837.

3 Proctor D, Williamson RA, de Waal FBM, Brosnan SF (2013) Chimpanzees play the ultimatum game. *Proc Natl Acad Sci USA* 110(6):2070–2075.

4 Proctor D, Williamson RA, de Waal FBM, Brosnan SF (2013) Reply to Jensen et al.: Equitable offers are not rationally maximizing. *Proc Natl Acad Sci USA* 110(20):E1838.

5 Proctor D, Brosnan SF, de Waal FBM (2013) How fairly do chimpanzees play the ultimatum game? *Commun Integr Biol* 6(3):e23819.

6 Steinbeis N, Bernhardt BC, Singer T (2012) Impulse control and underlying functions of the left DLPFC mediate age-related and age-independent individual differences in strategic social behavior. *Neuron* 73(5):1040–1051.

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The authors declare no conflict of interest.

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