

# Reply to Jensen et al.: Equitable offers are not rationally maximizing

When playing the ultimatum game, chimpanzees and children shifted their behavior from selfish offers in the preference test to more equitable ones in the ultimatum game (1). Why did they do so? All that we can measure is behavior, not motivations. Nonetheless, in human studies equitable outcomes are interpreted as reflecting a sense of fairness, thus this explanation must be considered for the apes as well. Given the genetic similarity between both species, shared explanations are the most parsimonious from an evolutionary perspective. Indeed, Jensen et al. (2) offer no alternative and ignored the similar responses of the children in our study.

Rather, Jensen et al. (2) focus on the lack of refusals among our subjects. As they pointed out, humans routinely refuse unfair offers, a behavior that has been interpreted as the rejection of unfairness [although recent evidence suggests that this may not be the underlying motivation (3)]. However, this focus ignores the fact that human equitable offers are made before a refusal has occurred. Moreover, in human studies, there is no other recourse besides refusing if one is dissatisfied; the game is typically played between anonymous strangers in one-shot situations, and recipients are told that they have only two options: accept or reject. In fact, subjects will accept “unfair” offers if some other recourse is available (4). Our subjects did have other options, as they could openly communicate with each other, and did so, occasionally reacting to selfish offers

by spitting water at the proposers (chimpanzees) or saying “I want more” (children) (5). Our chimpanzees may be called “rational maximizers” if the ultimatum game is defined by the recipient’s refusals; but if the ultimatum game is defined by its structure, our chimpanzees clearly violated that strategy by choosing the equitable option in 76% of the trials.

In their methodological critique, we were surprised that the Jensen et al. (2) mistook the graph (which is based on pooled data for ease of comprehension) with the actual statistical analysis, which was done for each chimpanzee dyad separately (Table 1 in ref. 1; children’s between-subjects data are pooled). Additionally, Jensen et al. expressed concern about ordering effects. We ran the preference test before the ultimatum game to ensure that our subjects preferred more over fewer rewards, a standard assumption for humans and essential to interpret chimpanzees’ behavior. In doing so, we actually rewarded the subjects for selfish preferences, making their switch in preference to the equal option in the ultimatum game condition all of the more striking.

Finally, Jensen et al. (2) surmise that the chimpanzees did not understand the task even though they passed numerous pretests verifying that they had learned its contingencies. In contrast to earlier ultimatum game studies that did not require apes to interact, and in which they only rarely did, our methodology forced one individual to physically accept the token selected by the other. The

fact that both parties had to pay attention to each other may explain their change in behavior. If this is not equitable behavior in an ultimatum game, then we urge a similar reinterpretation of the human ultimatum game data.

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The authors declare no conflict of interest.

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