On the Origins of Altruism in Ontogeny and Phylogeny

Felix Warneken

Harvard University

Boston University Dialogues on Biological Anthropology
October 2010

What are the origins of human altruistic behaviors? Several researchers assume that altruistic behavior such as sharing or helping others is founded mainly or exclusively in cultural practices such as the internalization of social norms or a long history of being rewarded for acts of altruism. Children are often characterized as acting based upon immediate selfish goals alone, with socialization practices as the main factor adding altruistic motivations to children's behavioral repertoire. Moreover, in support of the view that the development of altruistic motivations is human-unique, chimpanzees are thought of being guided solely by self-interest, not caring about the welfare of others. However, recent experiments with young children and chimpanzees indicate that human altruism might have deeper roots. Specifically, I will present a series of experiments investigating the *proximate mechanisms* for altruistic behavior, i.e. the cognitive and motivational processes leading to behaviors such as helping and sharing that are aimed at benefiting another individual rather than oneself. These experiments contribute to a better understanding of the ontogenetic origins of these behaviors in humans, as well as the phylogenetic origins by means of comparative studies with chimpanzees. I will summarize these studies to defend the hypothesis that human altruism is not due to cultural practices alone, but might reflect a biological predisposition that we share with chimpanzees as one of our closest evolutionary relative.

What do we know about the ontogenetic origins of altruistic behaviors? One particularly informative behavior is instrumental helping, in which one person is performing an act that will help another person achieve a concrete goal. In an initial study, we presented 18-month-old infants with ten different situations in which an adult was having trouble achieving a goal (Warneken & Tomasello, 2006). For instance, an experimenter used clothespins to hang towels on a line, when he accidentally dropped a clothespin on the floor and unsuccessfully reached for it. Or the experimenter was trying to put a stack of magazines into a cabinet, but he could not open the doors because his hands were full. The finding of this experiment was that children

displayed spontaneous, unrewarded helping behaviors when another person was unable to achieve his goal and did so across a variety of contexts. Importantly, the children performed these behaviors significantly less often in control conditions where no help was necessary. This shows that children can differentiate between accidental and purposeful acts and help accordingly.

Children are thus willing to help – but do they expect to be rewarded in return? In one experiment we directly contrasted whether 18-month-old children are motivated by the other person's goal or an immediate benefit for themselves by varying whether the helpee would or would not offer a reward in return for their helping effort (Warneken, et al., 2007). Children once again helped by picking up objects the experimenter was unsuccessfully reaching for – and did so irrespective of being rewarded for it. Thus, what determined children's helping was the other's unfulfilled goal, not an immediate benefit for themselves. Using a crucial distinction from motivational psychology, we may thus ask whether such acts of altruism are intrinsically or extrinsically motivated. Warneken & Tomasello (2008a) found that children who had received a material reward for helping during an initial test phase were subsequently less likely to engage in further helping than children who had not received such a reward. This finding provides even further evidence for the hypothesis that children's helping is driven by an intrinsic rather than an extrinsic motivation. Rewards are often not only superfluous, but can have even detrimental effects as they can undermine children's intrinsic altruistic motivation.

Taken together, these studies demonstrate that young children are not oblivious to the needs of others. In addition to all the self-focused and selfish things children do, they can act on behalf of others if the occasion arises. The fact that these behaviors emerge so early in ontogeny suggests that social and moral norms are not the original source of these behaviors. It can still be argued that young children are especially quick social learners—or that parents are particularly motivated to raise altruistic offspring and thus reward these behaviors early on. However, there is another empirical approach that can be instructive: comparing the behavior of human children to that of chimpanzees.

Are these altruistic tendencies unique to humans or do chimpanzees share some of them? If cultural practices—such as internalizing social norms or being taught how to behave—are the main source of our altruistic behaviors, we would not expect to see those behaviors in chimpanzees. This is because, to the best of our knowledge, chimpanzees do not teach their

children how to behave toward other individuals, nor do they enforce communally shared cultural norms. The absence of these socialization practices suggests the hypothesis that only humans develop a motivation to act on behalf of others, whereas chimpanzee behavior is guided solely by selfish interests leading to personal gain.

As described in the statement by Joan Silk, several studies indicate that chimpanzees do not act on behalf of others in situations which involve that one individual us actively providing food to a conspecific. In particular, in a study by Jensen et al. (2006), chimpanzees did not reliably pull a tray with food within reach of a conspecific if they themselves would not benefit from the act. In Silk et al. (2005), one chimpanzee (the actor) could choose between one handle delivering food only to the actor or a handle delivering the same amount of food to the actor, but in addition a piece of food to another chimpanzee (the recipient). Chimpanzees chose randomly. These results have been taken as evidence that chimpanzees are self-regarding and do not care about immediate benefits for other individuals. However, this food-retrieval context might not be representative of all potential helping-situations.

As a matter of fact, when we tested chimpanzees in instrumental-helping situations similar to the tests with human children described above, we were amazed to see that chimpanzees, too, proved to be helpful at times. Specifically, human-reared chimpanzees helped when their human caregiver accidentally drop an object and unsuccessfully reach for it (Warneken & Tomasello, 2006). These chimpanzees picked the dropped objects up and brought them to the caregiver when she was reaching for them (but not in matched control conditions). An important concern was that this kind of helping might be restricted to human-reared chimpanzees interacting with their human caregiver: However, in a subsequent study we found that also semi-free ranging chimpanzees helped a human experimenter with whom they had not interacted before (Warneken et al., 2007). Strikingly, whether the experimenter offered a reward in exchange for the object had zero effect. Chimpanzees picked up the objects for him because he wanted them, not because they wanted a reward for themselves. Last but not least, several studies have now shown that chimpanzees help conspecifics in instrumental helping situations (Melis et al., 2008; Melis et al., in press; Warneken et al., 2007; Yamamoto et al., 2009). For example, we confronted chimpanzees with the following situation: A recipient chimpanzee tried to open a sliding door to get into a room where food was waiting for her (Warneken et al., 2007). However, the door was blocked by a chain attached with a peg to the bars in an adjacent room.

We found that when we placed a chimpanzee subject in the adjacent room, they would frequently release the chain so that the recipient chimpanzee could get the food. This behavior occurred less often in control conditions, in which the recipient was either trying to go through another door or no recipient was present. Thus, these chimpanzees seemed able to determine when another needed help and responded accordingly.

Taken together, a major challenge for the future is to find out under what other circumstances chimpanzees show altruistically motivated behavior—and under what circumstances they do not. In several studies, chimpanzees were somewhat reluctant to directly provide food to others, even at no cost to themselves. On the other hand, we had demonstrated that they do intervene on another's behalf in instrumental-helping situations. What explains this discrepancy? One pattern that appears to emerge is that chimpanzees help only when the helpee overtly expresses the need for help—reaching for a desired object, trying to open a door, or gesturing toward the potential helper. When these signals are absent, chimpanzees do not proactively engage in altruistic behaviors (Melis, Warneken, Jensen, Schneider, Call, & Tomasello, in press; Warneken & Tomasello, 2008b). This might reflect limitations in reading another's intentions or simply indicate a generally weaker altruistic motivation—that is, the helpee needs to work harder to persuade its conspecifics to provide assistance. Our tests showing prosocial behaviors in chimpanzees chimpanzee behavior (prosocial in the sense of being motivated to intervene upon another person's goal rather than a benefit to oneself) did not involve any sacrifice of resources or major effort on the part of the helper; thus, it remains an open question whether chimpanzees will engage in altruistic behaviors that come at a major cost. It is possible that they are willing to act altruistically if doing so is fairly cheap but are less prone to act altruistically when it isn't. What we can say at this point is that altruistic tendencies are not absent in chimpanzees. Chimpanzees seem to have the fundamental proximate mechanisms, i.e. the cognitive and motivational capacities for engaging in altruistic behavior that is aimed at benefiting others (at least in the immediate context). This suggests that human altruism might have evolutionary roots dating back at least to the last common ancestor of humans and chimpanzees.

These findings also help us to better understand the factors responsible for the emergence of altruistic behaviors in human children. Altruistic behaviors do not appear to be the sole outcome of cultural norms and socialization. No doubt socialization practices profoundly

influence children's development, and cultural norms can facilitate and sustain whatever is jump-started by biological inheritance. However, the adherence to cultural norms does not appear to be the original source of human altruism. Rather, it appears that cultural factors can build on a biological predisposition we share with our closest evolutionary relatives.

References

Jensen, K., Hare, B., Call, J., & Tomasello, M. (2006). What's in it for me? Self-regard precludes altruism and spite in chimpanzees. *Proc. R. Soc. B., 273*, 1013 - 1021.

Melis, A. P., Hare, B., & Tomasello, M. (2008). Do chimpanzees reciprocate received favours? *Animal Behaviour, 76*(3), 951-962.

Melis, A. P., Warneken, F., Jensen, K., Anna-Claire-Schneider, Call, J., & Tomasello, M. (under review). Chimpanzees help conspecifics obtain food and non-food items. *Chimpanzees help conspecifics obtain food and non-food items*.

Silk, J., Brosnan, S., Vonk, J., Henrich, J., Povinelli, D., Richardson, A. S., et al. (2005). Chimpanzees are indifferent to the welfare of unrelated group members. *Nature, 437*, 1357 - 1359.

Warneken, F., Hare, B., Melis, A. P., Hanus, D., & Tomasello, M. (2007). Spontaneous altruism by chimpanzees and young children. *PLoS Biology, 5* (7), 1414 – 1420.

Warneken, F., & Tomasello, M. (2006). Altruistic Helping in Human Infants and Young Chimpanzees. *Science, 311*, 1301-1303.

Warneken, F., & Tomasello, M. (2008a). Extrinsic rewards undermine altruistic tendencies in 20-month-olds. *Developmental Psychology, 44*(6), 1785-1788.

Warneken, F., Tomasello, M. (2008b). Roots of human altruism in chimpanzees. Primate Eye 96 (Special Issue: Abstracts of the XXII Congress of IPS): 16.

Yamamoto, S., Humle, T., & Tanaka, M. (2009). Chimpanzees Help Each Other upon Request. *PLoS ONE 4(10): e7416. doi:10.1371/journal.pone.0007416*.