

# Rethinking natural altruism: Simple reciprocal interactions trigger children's benevolence

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**A very simple reciprocal activity elicited high degrees of altruism in 1- and 2-y-old children, whereas friendly but nonreciprocal activity yielded little subsequent altruism. In a second study, reciprocity with one adult led 1- and 2-y-olds to provide help to a new person. These results question the current dominant claim that social experiences cannot account for early occurring altruistic behavior. A third study, with preschool-age children, showed that subtle reciprocal cues remain potent elicitors of altruism, whereas a fourth study with preschoolers showed that even a brief reciprocal experience fostered children's expectation of altruism from others. Collectively, the studies suggest that simple reciprocal interactions are a potent trigger of altruism for young children, and that these interactions lead children to believe that their relationships are characterized by mutual care and commitment.**

reciprocity | altruism | social development | morality

The 19th-century philosopher Auguste Comte coined the term “altruism” to denote an ethical doctrine that places great value on helping others accomplish their goals (1). Today, the study of altruism is one of the most popular areas of research across the biological and social sciences (2–5). Perhaps one of the most consequential questions in the field of altruism involves illuminating its causes. Why do people help each other?

In recent years, rather than primarily relying on studies with human adults or with animals to understand the roots of altruism, scientists have taken to studying the behavior of young humans. One of the most prominent findings in this area is that 1- and 2-y-olds often provide help to novel individuals (6, 7). These groundbreaking results have been taken as evidence that the capacity for humans to provide help is unlikely to result from “acculturation, parental intervention, or any other form of socialization” (8).

Is it truly the case that social experience has little or no role to play in promoting early helping? In our research, rather than interpreting early occurring helping behavior as indicating natural altruism (8), we tested the hypothesis that helping behavior could result from the values or practices subtly communicated in a social situation (9, 10).

Because research across the biological and social sciences has identified reciprocity as a building block of altruism (11–13), we tested whether, rather than simply emerging automatically, helping would be evident when specific cues of reciprocity were present in the laboratory situation, but would be displayed at much lower levels when such cues were absent. If this were the case, the research would highlight the sensitivity of young children to subtle social cues that signal the nature of an interaction or relationship and, at the same time, make more plausible the role of social experience in triggering young children's benevolent actions.

Thus, we proposed that a brief experience with reciprocity (e.g., passing a ball back and forth) could well communicate benevolent values or practices and thereby serve as a trigger of children's altruism. Indeed, because children may not be used to participating in studies or may be wary of strangers, experimenters typically engage in a “warm-up” activity that is aimed at acclimating children to the testing room and to the experimenter. Often, these experiences involve simple reciprocal

activities, such as rolling a ball back and forth together or playing with the same set of objects in a back-and-forth manner. We note that the researchers who have claimed that social experiences do not account for early occurring helping behavior report such warm-up activities with their young participants in their studies on helping (14, 15). Thus, we believe that prior studies showing high degrees of spontaneous altruism in young children (6–8) may have actually exposed children to cues of reciprocity and that these cues may be responsible for children's helping. If we could demonstrate this, we would have evidence for an important claim—that reciprocal experiences engender altruism in quite young humans—and that would license the further suggestion that social histories can be an important trigger of helping behavior.

We present the results of four studies. In study 1, a reciprocal interaction led 1- and 2-y-olds to become far more helpful than a friendly interaction that was not reciprocal. In study 2, the effects of a single reciprocal interaction carried over to affect how much children of this age helped a second person in the situation. In study 3, we asked whether reciprocity remained a potent cue for older (preschool) children and found that reciprocal interactions promoted greater generosity. Finally, study 4, also with preschoolers, suggested that reciprocal interactions trigger an important belief in the mind of a child: the perception of benevolence in that situation.

## Study 1

The Stanford University Institutional Review Board approved this study and all parents provided informed consent. Thirty-four 1- and 2-y-olds ( $M = 2.11$  y,  $SD = 0.58$ , 17 girls) were randomly assigned in study 1 to a warm-up period that involved either reciprocal play or parallel play. The experimenter began the session by enthusiastically greeting the caregiver and child and bringing out “fun toys” from a bag. Two sets of identical toys existed. In the reciprocal play condition, the experimenter retrieved only one set of toys and engaged reciprocally with the child by taking turns rolling a ball, pushing buttons on a small

### Significance

**This research showed that a very simple reciprocal activity elicited high degrees of altruism in 1- and 2-y-old children (as well as older children), whereas friendly but nonreciprocal activity did not. By doing so, it calls into question the current, dominant claim that young humans are naturally and spontaneously altruistic and that socialization cannot account for their altruistic actions. Beyond their scientific innovation, the findings can have important implications for adult-child interactions. Caregivers may engage in simple reciprocal activities that foster both the enactment of altruism in children and their expectation of altruism from others.**

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musical toy, and handing large plastic rings to each other. In the parallel play condition, the experimenter and the child each had his or her own set of toys. Under both conditions the experimenter sat 3 ft away from the child, looked and smiled toward the child's face every 30 s, and made the same friendly statements about the situation in a playful tone each time that he looked at the child (e.g., "Toys are fun!") After 6 min, the experimenter removed the toys and proceeded to the test phase.

In the test trials, taken directly from prior research (6), the experimenter unambiguously needed and desired help to attain four goals: to reach a block, a bottle, a clothespin, and a pencil that were out of reach. Children were given 30 s to help on each trial, as the experimenter continued to reach toward the object. Because there was no interaction between age and condition in predicting helping ( $P = 0.46$ ), we aggregated across 1- and 2-y-olds. As hypothesized, children in the reciprocal play condition helped on significantly more of the four trials ( $M = 3.05$ ,  $SD = 1.51$ ) than children in the parallel play condition [ $M = 1.23$ ,  $SD = 1.48$ ,  $t(32) = 3.55$ ,  $P = 0.001$ ,  $d = 1.21$ , 95% C.I. with 5,000 bootstrap samples: 0.76–2.79] (Fig. 1A). The low level of helping in the parallel play condition is particularly striking, given the salience of the experimenter's need for help and given that children had little else to do in that situation.

Did the experimenter signal something more to the child than the terms of their particular relationship? Did he also signal that the more general norm in the situation was one of benevolence? In study 2, we examined whether the altruism engendered by our reciprocal play procedure could trigger helpfulness toward a second person. If so, we could take this as evidence that the children had become "acculturated" to the altruistic norm of the environment. We also introduced a control condition to clarify whether reciprocal play increases helping or parallel play decreases it.

## Study 2

Thirty 1- and 2-y-olds ( $M = 2.16$ ,  $SD = 0.48$ , 13 girls) were randomly assigned in study 2 to one of three conditions. One condition was a control condition in which the child played by herself while the experimenter sat on a nearby chair and talked to the child in the same manner as in the other conditions. The other two conditions were identical to the parallel and reciprocal play conditions in study 1. Following these procedures, the experimenter brought in an assistant who was blind to the condition. When the experimenter left the room, the assistant proceeded to reach toward the objects in the same help-seeking way that the experimenter had done in study 1. Because there was no

interaction between age and condition in predicting helping ( $P = 0.15$ ), we again aggregated across 1- and 2-y-olds. A one-way ANOVA showed an effect of condition:  $F(2, 27) = 7.64$ ,  $P = 0.002$ . As hypothesized, the children in the reciprocal play condition helped the assistant at a significantly higher rate ( $M = 3.00$ ,  $SD = 1.63$ ) than children in either the control condition [ $M = 1.20$ ,  $SD = 1.47$ ,  $t(18) = 2.58$ ,  $P = 0.019$ ,  $d = 1.16$ , 95% C.I. with 5,000 bootstrap samples: 0.33–3.03] or the parallel play condition ( $M = 0.70$ ,  $SD = 0.94$ ),  $t(18) = 3.85$ ,  $P = 0.001$ ,  $d = 1.72$ , 95% C.I. with 5,000 bootstrap samples: 1.08–3.33. Importantly, the control and parallel play conditions did not differ from one another [ $t(18) = 0.9$ ,  $P = 0.37$ , 95% C.I. with 5,000 bootstrap samples:  $-0.54$ – $1.62$ ] (Fig. 1C). As such, parallel play did not reduce helping; reciprocal play produced it.

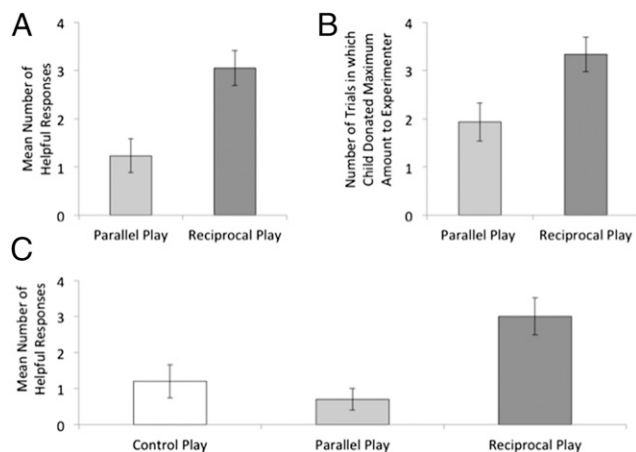
How can these effects be explained? One potential answer is that reciprocal experiences made children experience the interaction in a more positive way and that this affective positivity accounted for children's behavior. To address this possibility, two independent raters (blind to the hypothesis) watched videos of the warm-ups from study 2 and used a 1–5 scale to rate the amount of fun that the children had while playing. Specifically, coders were explicitly told that having fun in this situation involved the child engaging with the toys, smiling toward the experimenter or their caregiver, or moving around the play area—all behavioral signs that the children were comfortable and engaged in the situation. Because interrater reliability was high ( $\alpha = 0.91$ ), the scores were averaged. The results showed that children in the parallel and reciprocal play conditions were both above the midpoint (3) in rated fun and did not differ significantly [ $M = 3.20$ ,  $SD = 1.13$  for the parallel condition;  $M = 3.90$ ,  $SD = 1.07$  in the reciprocal condition),  $t(18) = 1.41$ ,  $P = 0.17$ , 95% C.I. with 5,000 bootstrap samples:  $-0.25$ – $1.62$ ]. Importantly, children's fun did not explain their helping behavior [mediation test (16) 95% C.I. with 5,000 bootstrap samples:  $-0.17$ – $1.22$ ]. Relatedly, although children clearly had less fun in the no-treatment control condition ( $M = 2.80$ ,  $SD = 1.29$ ) than in the reciprocal play condition [ $t(18) = 2.07$ ,  $P = 0.05$ , 95% C.I. with 5,000 bootstrap samples: 0.06–2.10], the amount of fun that children had did not explain their helping, mediation test (95% C.I. with 5,000 bootstrap samples:  $-1.90$ – $0.23$ ). As such, a fun differential did not account for the effect of condition.

The results of study 2 are meaningful and striking: children in the parallel play condition (and the control condition) tended to stand by and do nothing when a new person needed help—despite the fact that there was little else to do in the situation. By contrast, the children in the reciprocal play condition responded by helping time and time again—despite the fact that this new person had previously done nothing for them and now gave them nothing in return. As such, these patterns contradict the claim that social experiences are not related to helping in 1- and 2-y-old children (8).

Our findings may seem inconsistent with another recent finding that 2-y-olds do not seem to help puppets who help them any more than they help puppets who do not help them, which has been interpreted to mean that young toddlers do not use reciprocity as a cue for helping (15). In contrast, our data show that 1- and 2-y-olds are actually capable of using far subtler forms of reciprocity to infer the benevolent norms of the situation. Moreover, it is possible in this past research that a prior warm-up period involving reciprocal play had already primed high levels of altruism.

## Study 3

In studies 3 and 4, we turn to somewhat older children to answer a complementary set of questions. Thus far, we have shown that the altruism of 1- and 2-y-olds is most likely to occur when cues of reciprocity have been established. However, it is important for both theoretical and practical reasons to examine whether reciprocity remains a potent cue for older children. If it does, it



**Fig. 1.** Effect of reciprocal play manipulation on helping in study 1 (A) and study 2 (C) and on generosity in study 3 (B). Error bars represent the SEM.

means that reciprocity is a cue that not only jump-starts early altruism but also continues to promote altruism and, as such, can be capitalized upon for this purpose. Thus, study 3 examined whether a much shorter version of our manipulation could have the same effect on older children on a conceptually similar dependent variable: generosity. Thirty 4-y-olds ( $M = 4.52$  y,  $SD = 0.26$ , 14 girls) in this study were randomly assigned to one of the two conditions. In the reciprocal play condition, the experimenter and the child rolled a ball back and forth for 1 min. In the parallel play condition, the experimenter gave children a ball to play with while he played with an identical ball. The experimenter's affect and conversation within the interaction (e.g., "This is a nice ball!") was standardized across conditions. After 1 min, an assistant, blind to condition, announced that he was ready to play the "real" game, at which point the experimenter exited the room and the assistant administered the dependent measures. Children were given six opportunities to allocate stickers to themselves and to the (now-absent) experimenter. This measure was directly drawn from a prior study that examined children's economic behavior (17). In two trials, children had to choose between a (1 to self, 1 to experimenter) allocation and a (1 to self, 0 to experimenter) allocation; in two trials, they chose between a (1, 1) and a (1, 2) allocation; and in two trials they chose between a (1, 1) and a (2, 0) allocation. Because there was no interaction between trial type and condition ( $P = 0.32$ ), we aggregated across trials to create a composite score of the number of trials in which the child acted generously toward the experimenter. The results showed that children in the reciprocal condition were significantly more generous ( $M = 3.33$ ,  $SD = 1.53$ ) than the children in the parallel play condition [ $M = 1.93$ ,  $SD = 1.39$ ],  $t(28) = 2.61$ ,  $P = 0.014$ ,  $d = 0.95$ , 95% C.I. with 5,000 bootstrap samples: 0.36–2.45] (Fig. 1B). Thus, extending study 1 and 2, study 3 found that reciprocity remained a powerful cue for somewhat older children and that even a short reciprocal interaction could trigger altruism in them.

#### Study 4

Why did our participants carry out these altruistic actions? We have suggested that reciprocal interactions establish a norm of benevolence, but we have yet to show that children view it as a two-way street. In study 4, following up on our study of preschoolers, we ask: Does a brief period of reciprocal play create the expectation of benevolence? If so, we would have identified an important source of a child's belief in a foundational aspect of social reality: the extent to which others can be expected to be benevolent.

Twenty 4-y-olds ( $M = 4.40$  y,  $SD = 0.35$ , 12 girls) in this study were brought by an experimenter to a testing room. Once there, the experimenter asked two assistants if they could play with the child while he, the experimenter, carried out another task before playing the "real" game. Once children assented to playing with these new people, the experimenter, to remain blind to the children's experience, turned away for the remainder of the play session. Next, one assistant sat in front of the child for one uninterrupted minute and engaged in either reciprocal or parallel play (counterbalanced); then the second assistant engaged in the other form of play for a second uninterrupted minute. As in study 3, the reciprocal play involved rolling a ball back and forth with the child, and the parallel play involved giving the child a ball and playing with another ball. Each assistant emoted and spoke in the same way during the interaction (e.g., "This is a nice ball!") After 2 min, the assistants left the room and the experimenter turned toward the child and showed him or her pictures of the two assistants. Using a forced-choice procedure, children were asked to point to the person whom they thought would give them a gift, help them open a door, and share a toy with them. The results showed that children chose the reciprocal interaction partner over the parallel partner as the one who would engage

benevolently at a level significantly higher than chance [an average of 2.15 of the three trials; one-sample  $t$  test against chance value of 1.50,  $t(19) = 3.90$ ,  $P = 0.001$ , 95% C.I. with 5,000 bootstrap samples: 0.35–0.95].

#### Discussion

We began our investigation by examining whether a simple experience with reciprocity might serve as a critical cue for altruism. We found support for this contention. Reciprocal interactions triggered high levels of altruistic behavior on the part of 1- and 2-y-olds whereas parallel play did not. Moreover, we found this with an age group in which altruism had been depicted as occurring naturally and without much need for social input (8). We further found that an even shorter reciprocal interaction elicited substantially more altruism than a parallel interaction in preschoolers and that these interactions yielded not only the enactment of altruism but the expectation of it from others. Thus, consistent with anthropological (18, 19), economic (20, 21), evolutionary (22, 23), philosophical (24), psychological (25–27), and sociological (28, 29) theories of human contractual processes, our young participants were, in a sense, capable of drawing broad inferences about the benevolent norm of the situation on the basis of reciprocal patterns of behavior.

It is interesting to note that although prior research has shown that explicitly rewarding or encouraging helping seems to lower it (30, 31), in none of our studies did we directly model, teach, or reward altruistic actions for children. Rather, we exposed children to certain cues about the local "culture." In the parallel play condition, children may have learned that, in this culture, people engage with each other by carrying out their own activities. By contrast, in the reciprocal play condition, they may have learned that people engage with each other by being responsive to each other's needs.

As such, our findings build on past research showing that infants' helping may be triggered by actions that people carry out, such as intentionally providing toys to the infant (32). However, it is important to note that the experimenter in our studies provided toys in both the reciprocal and the parallel play conditions. What varied across the conditions was whether the experimenter and the child engaged reciprocally, not whether the experimenter showed an intention to provide. Our research also builds on past research showing that preschoolers understand the principle of economic reciprocity and use it to guide their decisions about what others should do (33). Our findings suggest that children will be more likely to act on the principle of economic reciprocity if they have themselves undergone even a simple reciprocal interaction.

More generally, and consistent with research that shows that children are avid learners who eagerly look for clues about how the physical world operates (34, 35), our data build on theories of children's social learning (36, 37) by documenting that reciprocal interactions trigger the enactment and expectation of altruism in young children. That is, after an experience with reciprocity, children seem to construct a community characterized by care and commitment. Thus, the notion that socialization has little or no part to play in early occurring altruism (8) becomes less plausible. Experimenters, parents, teachers, and others who regularly interact reciprocally with children may be implicitly communicating to children that in these contexts people help one another. Fortunately, children seem quite eager to adopt this "benevolent social contract."

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