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Short Research Note

Rousseau's Child

Preschoolers Expect Strangers to Favor Prosocial Actions

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Abstract. Modern thinking about human nature is notoriously divided between two contradictory notions: The Hobbesian tradition portrays men as driven by selfish desires, while the Rousseauian tradition recognizes altruistic proclivities as true motivations to cooperate. We tested preschoolers' predictions about the prosocial or antisocial manner in which people would behave toward each other. Four stories were presented to 3- and 4-year-old children. In each story, the protagonists could either cooperate, act in terms of their own interests, or adopt a behavior unrelated to the ongoing scenario. Children as young as 3 years of age expected the protagonists to behave prosocially – and even more so if the protagonists were female. The results suggest that, even at an early age, children are inclined to adopt a "Rousseau-like" stance rather than a "suspicious" or "pessimistic" Hobbesian stance.

Keywords: cooperation, prosocial behavior, altruism, gender differences

Modern thinking about human nature is notoriously divided between two contradictory notions: The Rousseauian tradition proposes that people have an innate sensitivity toward others and are instinctively oriented toward "mutual aid" and altruistic cooperativeness, while the Hobbesian tradition portrays people as being driven by selfish desires in a social world that is constantly threatened by the "war of every man against every man" (Hobbes, 1996/1660, p. 76). A contemporary manifestation of this Hobbesian perspective can be found in some of the prevailing evolutionary accounts of human behavior. Indeed, the adaptationist theory of fitness, that is, the relative ability of an organism to survive and transmit its genes to the next generation, tends to see the organism, or rather the genes that make it up, as fundamentally selfish. Within this framework, especially in its genetic variant, acts of altruism and prosocial tendencies seem truly puzzling (Fehr & Gaechter, 2002; Johnson, Stopka, & Knights, 2003). To make sense of this puzzle, behavioral biologists have suggested various novel explanations, such as kin selection (Axelrod & Hamilton, 1981; Hamilton, 1963), reciprocal altruism (Seyfarth & Cheney, 1984; Trivers, 1971), strong reciprocity (Boyd, Gintis, Bowles, & Richerson, 2003; Fehr & Gaechter, 2002; Gintis, 2008), or group selection (Sober & Wilson, 1998).

Recently, a more Rousseau-like view of nature has gained momentum in the literature. In studies using economic games, adults have been found to be intuitively cooperative (Nowak & Highfield, 2011; Rand, Greene, & Nowak, 2012). In the fields of psychology and primatology, the cooperative activities that facilitate social cohesion and make group living worthwhile have also been highlighted (de Waal, 1982, 1997, 2012). If cooperation is a driving force in evolution, then altruistic tendencies may be true incentives to cooperate, not the manifestation of some hidden, selfish agenda (Brosnan & de Waal, 2003; de Waal, 2008; de Waal & Roosmalen, 1979; Preston & de Waal, 2003). Whereas the existence of prosocial tendencies in nonhuman primates is still controversial (Jensen, Hare, Call, & Tomasello, 2006; Silk et al., 2005), recent developmental studies confirm that human children tend to spontaneously adopt prosocial behaviors, not only toward significant others or people who might reciprocate (Olson & Spelke, 2008), but even toward strangers (Warneken, Chen, & Tomasello, 2006; Warneken, Hare, Melis, Hanus, & Tomasello, 2007; Warneken & Tomasello, 2006; for a synthesis, see Tomasello, 2009). Other recent studies have demonstrated that young children's prosocial propensities are motivated by a genuine concern for the welfare of others, not by extrinsic rewards (Hepach, Vaish, & Tomasello, 2012, 2013). What remains to be studied are the kinds of predictions that children make when they observe social situations that can trigger either cooperative or noncooperative behaviors.

In everyday life, we continuously need to predict whether others will behave selfishly or selflessly, not only to anticipate how they will act during the course of action but also to determine our own action, whether it be asking for

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help, offering an invitation to dinner, looking after a child, lending money, and so on. To shed light on the ontogeny of these prosocial or antisocial expectations and on the potential priority of one expectation over the other, this study examined young children's predictions concerning the social behavior of protagonists they did not know. We investigated whether children – as soon as they are able to answer questions about such hypothetical scenarios, that is, when they are 3 and 4 years of age – expect others to adopt prosocial behavior, even when it comes at a potential cost to themselves or, on the contrary, whether they expect others to maximize their own interests.

To our knowledge, children's prosocial predictions of the behavior of unfamiliar others have rarely been addressed. Indeed, previous developmental studies have focused on the way children take known social relationships and past exchanges into account when predicting prosocial behavior. For example, 3.5-year-old children expect people to share more with family and friends than with strangers, to reciprocate acts of giving by others, and to reward those who give to others (Olson & Spelke, 2008; see also Levitt, Weber, Clark, & McDonnell, 1985). If the recipient is a friend, 4.5- to 6-year-old children make equitable decisions and share just as much regardless of whether there is a cost to themselves; in contrast, children are less likely to allocate resources to a recipient who is not a friend (Moore, 2009; see also Costin & Jones, 1992). Young children therefore seem able to take into account past encounters and the relationship between the people involved in order to infer how they will interact in the future.

However, these studies remain silent on the nature of children's expectations concerning the social behavior of individuals whose previous history is unknown to them. Do children expect strangers to behave prosocially or antisocially?

Method

Rather than investigating children's own, first-person inclination to display pro- or antisocial behavior when interacting with different categories of people, our study tested their intuitions about the way in which other people respond to situations in which either prosocial or antisocial acts are possible. This kind of third-person task has the advantage of minimizing any influence from the child's own motivational state (Olson & Spelke, 2008) and permits a test of whether basic prosocial principles serve as a general guide to children's reasoning. As stated above, the protagonists' relationship and the nature of their previous encounters were not specified. Two figures (Playmobil®) were introduced to the participants in four successive situations that brought three different types of prosocial behavior into play: sharing (Story A), helping (Story B), and cooperating (Stories C and D). In each case, the participants were to predict the kind of behavior (prosocial, antisocial, or nonrelated) the protagonist would adopt in the situation.

Participants

Eighty-one children (42 girls), divided into two age groups, participated in the study; 40 were 3-year-olds (M = 41.75, SD = 4.04, range: 35 to 48 months) and 41 were 4-year-olds (M = 52.44, SD = 2.54, range: 49 to 59 months). The participants were recruited from childcare centers in Lausanne (Switzerland) and came from middle-class families. They were tested individually in a quiet room at their childcare center. Informed parental consent was obtained for each child. All participants were treated according to the Declaration of Helsinki.

Material

Using pictures of different Playmobil® figures, we created a booklet made up of four short stories involving two young characters. Half of the participants received a story with male characters, the other half with female characters. The characters were introduced by their first name (Sebastian and Victor for the boys, Astrid and Olivia for the girls), without there being anything said about the nature of their relationship. In each scenario, one of the two characters was in a position to adopt or not adopt prosocial behavior.

In Story A, Victor/Olivia was shown holding a bag of candies received from the other character, Sebastian/Astrid. Three possible actions that could complete the story were depicted: Victor/Olivia shares his/her candy with Sebastian/Astrid (prosocial action); Victor/Olivia pays no attention to Sebastian/Astrid (selfish action); or both characters start doing push-ups (nonrelated action).

In Story B, Victor/Astrid was shown riding his/her bike without concentrating on the road. He/she did not see a rock, hit it, and fell off his/her bike, hurting his/her leg. Then Sebastian/Olivia passed by and saw Victor/Astrid on the ground. Again, three possible actions could complete the story: Sebastian/Olivia helps Victor/Astrid get back on

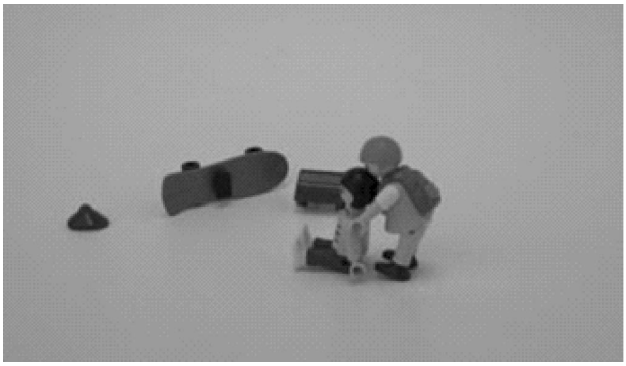

Figure 1. Example of prosocial ending (Story B).

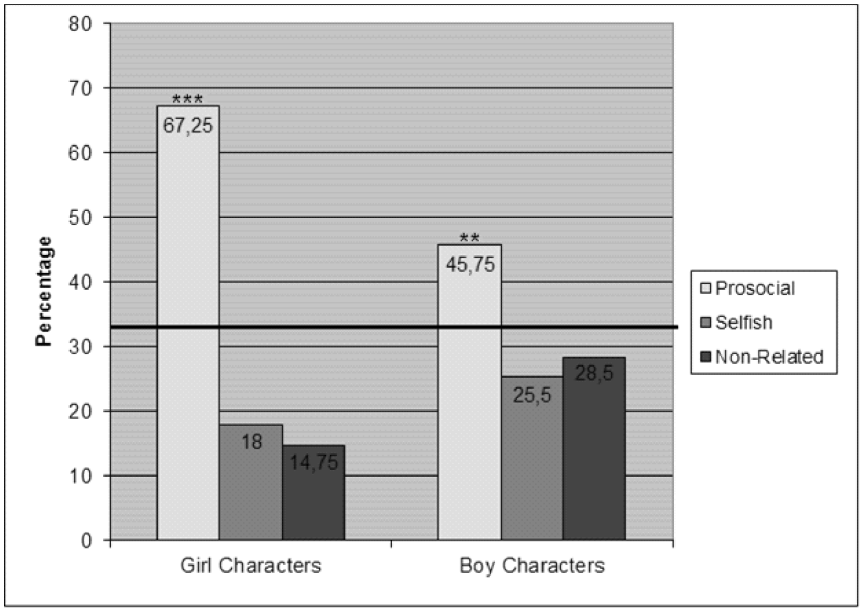

Figure 2. Percentage of prosocial, selfish, and nonrelated choices as a function of the protagonist's sex. Asterisks (***$p < .001$ and **$p < .01$) indicate above-chance performance (the chance line is at 33.3).

his/her feet (Figure 1); Sebastian/Olivia continues without stopping; or Sebastian/Olivia lies down next to Victor/Astrid.

In Story C, Victor/Astrid and Sebastian/Olivia were shown next to an ice cream vendor. The vendor told them that he would give an ice cream to the first child able to climb a nearby tree. The three possible actions were: Sebastian/Olivia helps Victor/Astrid climb the tree; Sebastian/Olivia and Victor/Astrid fight to be the first; Sebastian/Olivia or Victor/Astrid calmly sit on opposite sides of the scene.

Finally, Story D began by depicting Sebastian/Olivia and Victor/Astrid alongside a street sweeper; a broom was leaning against a garbage can. The street sweeper promised a reward (50 Swiss francs) to the child who would sweep the road. The three possible actions were: Victor/Astrid collaborates with Sebastian/Olivia by holding the lid of the garbage can; they start a fight to obtain the broom; or they both sit on top of the lid.

Procedure

The experimenter presented the story booklet to each child. The order of the scenarios in the booklet was counterbalanced to avoid order effects. The participants were told that the experimenter would show them short stories with Playmobil® figures and that they would have to decide how to end the stories by choosing one of three possible endings. After reading each story, the experimenter introduced the three possible endings as follows: "Now I am going to show you three pictures. Please select the picture that shows what will happen next." The three pictures were then displayed, and each was described briefly. The children were then asked to point to the picture showing how the story ends.

Results

The percentage of prosocial, selfish, and nonrelated choices was calculated for each child. For instance, if a child chose the prosocial actions in both Stories A and B, the selfish action in Story C, and the nonrelated action in Story D, the percentage was 50% for prosocial choices, 25% for selfish choices, and 25% for nonrelated choices. All comparisons were performed using the Mann-Whitney U test. Comparisons to chance-level responding were calculated according to the one-sample Wilcoxon signed rank test.

For the prosocial choices, there were no significant differences between 3- and 4-year-old children ($p = .256$) or between girls and boys ($p = .080$). With respect to the protagonist's sex, children expected girls to produce more prosocial actions (67.25%) than boys (45.75%, $p = .002$). Nevertheless, regardless of whether children received stories about girls or boys, they chose the prosocial actions more often than expected by chance for girl protagonists ($p < .001$) and boy protagonists ($p < .01$; see Figure 2).

For the selfish choices, there were no significant differences between 3- and 4-year-old children ($p = .992$), between girls and boys ($p = .683$), or when children were presented with boy versus girl protagonists ($p = .097$). Children chose the selfish actions significantly less often than chance (21.75%, $p < .001$).

For the nonrelated choices, there were no significant differences between 3- and 4-year-old children ($p = .256$) or between girls and boys ($p = .164$). With respect to the protagonist's sex, the children expected boys to produce more nonrelated actions (28.5%) than girls (14.75%, $p = .009$). When children were presented with boy protagonists, the choice of nonrelated actions did not significantly differ from chance ($p = .217$). When children were presented with

girl protagonists, the children selected the nonrelated actions significantly less often than chance ($p < .001$).

In summary, 3- and 4-year-old children expected the two strangers to adopt prosocial behavior toward each other. Without knowing anything about the characters' past history or previous relationship, they predicted that they would share things, offer help, and cooperate to achieve a goal. These prosocial expectations were even stronger when the two characters were female.

Discussion

The goal of the study was to shed light on young children's expectations regarding the mutual behavior of strangers. The results show that 3- and 4-year-old children do not adopt what we have called a Hobbes-like stance: Selection of the selfish option by both age groups was systematically below chance. On the other hand, 3- and 4-year-olds do expect individuals to respond prosocially in various ways: by sharing, helping, and cooperating. In short, when asked to predict the behavior of two characters whose past history and relationship are unknown to them, preschoolers adopt a Rousseau-like reasoning: They expect them to display prosocial behavior even if doing so goes against their own immediate interests. Our findings suggest that this optimistic stance concerning human relations is even stronger when preschoolers are to predict social interactions involving female characters: They expect girls to act more prosocially than boys.

Another important finding of this study is that preschoolers tend to expect a different behavior from male and female characters. Their gender-sensitive expectations may have been acquired through direct observation, in this case the observation of regular differences between girls' and boys' prosocial behavior. There are indeed several indications of such gender differences in prosocial behavior that young children are exposed to early and often. Even if this remains a controversial topic, meta-analyses have established cross-cultural patterns of sex differences in behavioral inclinations and preferred types of interaction: Females more often engage in cooperation than males, whose conduct tends to enhance traits of dominance and agency (Bakan, 1966; Eisenberg, Fabes, & Spinrad, 2006; Hoyenga & Hoyenga, 1993). Gender variations in predictions and behaviors could also be due to differences in their "reputational salience" among young children: Being kind versus mean to others may have greater implications for girls' social reputation than for boys' (Eagly & Crowley, 1986; Hartup, 1996). These gender differences are also in line with findings from experimental economics studies indicating that women tend to reciprocate more than men do (Andreoni & Vesterlund, 2001; Croson & Buchan, 1999). Recently, Eagly (2009) took up the agentic/communal distinction and showed that an underspecified conception of prosociality can be misleading: Neither sex can be said to be more prosocial than the other. Both women and men offer extensive help to others, but they specialize in different types of help. Women have been shown to exhibit more prosocial behavior in relational contexts (e.g., when it is about caring for an person), while men tend to be more prosocial in collective settings, notably when they are confronted with a person of higher status or when they can obtain a gain in status (Eagly, 2009). This point is critical because the stories used in our experiment are more similar to the relational situations that are more likely to trigger prosocial behavior in females than in males. Therefore, the significant difference we found in predictions for male versus female characters may have resulted from children's behavioral observations of women and men in their social environment.

Of course, a contrast between men and women is also widespread in the gender stereotypes that furnish the representational world of children. For instance, mothers' linguistic input conveys gender stereotypes through subtle, implicit messages – messages that children use to elaborate their own essentialist beliefs (Gelman, Taylor, & Nguyen, 2004). Thus, gender stereotypes concerning prosocial behavior as a typically female action may be partly responsible for the differences in children's expectations that our study highlights. It is important to note that, far from being incompatible, direct observation and social learning generally go together. Children's direct, first-hand observation of the concrete, tangible environment they live in is enriched by the knowledge and stereotypes they gather from what other people tell them (Clément, 2010; Harris, 2012).

It is important to note that our study, just like most studies on prosociality and cooperation, cannot rule out the possibility that our preschoolers' predictions reflected social desirability. Their responses may have been less future-oriented, focused on "what will happen next," than normative, focusing on "what people should do next" according to prevailing moral and social norms of cooperation[1]. This "social desirability" interpretation is supported by evidence showing that the presence of an observer affects prosocial behavior in older children (Bering & Parker, 2006; Piazza, Bering, & Ingram, 2011). There are also studies showing that children adjust their judgments to comply with the majority, suggesting that children care about "blending into the group" (i.e., an Asch effect in young children) (Corriveau & Harris, 2010; Haun & Tomasello, 2011). However, there is also evidence suggesting the contrary: Recent research found that young children helped others regardless of whether an adult was present (Warneken & Tomasello, 2012), that children were just as happy to see someone get helped as they were to get credit for helping (Hepach et al., 2012), and that children "internalized" rules in such a way that they tended to follow them even when there was no

1 We thank an anonymous reviewer for drawing our attention to this point.

authority figure (Dack & Astington, 2011). Further research is thus required to investigate whether prosocial predictions are modified when the experimenter is absent, which has almost never been the case in prosocial experiments with children.

Further research is also needed to study how prosocial expectations emerge in infancy and how consistent they are across development. Evaluative tasks tend to show that infants as young as 6 to 10 months of age prefer an individual who helps rather than hinders another person (Hamlin, Wynn, & Bloom, 2007). Similarly, it would be interesting to learn whether the expectation of cooperation appears earlier in ontogeny and is the default inference in infants by conducting experiments with younger children. Such experiments might also allow us to determine whether infants expect girls to be more prosocial than boys. The finding that even infants have prosocial expectations would provide support for the view that infants have a rudimentary moral sense if not a natural predisposition for altruism that is not the product of parental guidance or other forms of nurturance (Warneken & Tomasello, 2009).

Last but not least, it is very important to note that our use of the term "prosocial" to denote the different behaviors presented in this study is too generic to pinpoint any specific expectation or behavior. The term *prosocial behavior* refers to actions intended to benefit another person and covers a range of different actions, from instrumental helping to the provision of information to sharing and comforting. This wide range of more or less complex prosocial actions may involve distinct emotional and motivational states and different developmental processes (Thompson & Newton, 2013). The hypothesis that different forms of prosocial behavior call for different conceptual skills is supported by recent studies that found no systematic association between the different prosocial actions, especially sharing and helping behaviors, performed by 12- to 15-month-olds (Sommerville, Schmidt, Yun, & Burns, 2013). However, this does not mean that prosocial behavior is merely a conceptual umbrella for a variety of disparate, unrelated responses; instead it might be a developmental construct that is linked to a common goal, namely, to assist another person, a construct that broadens with developing competence (Thompson & Newton, 2013). Our study suggests that 3-year-olds have already developed such a construct, at least from a third-person viewpoint. Indeed, our results show that expectations regarding prosociality are "cross-situational." They go from simple helping or sharing situations to complicated situations in which competition is turned into collaboration. Those cross-situational expectations led the preschoolers to expect strangers to help one another, to share, and to cooperate. Such predictions are not in line with the suspicious, pessimistic stance that the Hobbesian perspective implies; they tend to confirm the Rousseauian view. The way in which both developmental pathways and social experience then shape this early optimism warrants further research.

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