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Additional Control Study for Margoni et al. (2022) “Do children selectively favor leaders and prosocial agents in an economic exchange?”

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In this study (hereafter referred as Study 3), a group of preschoolers played the *Dictator Game*, a measure of pure generosity, with the same agents used in Study 1 by Margoni et al., (2022) “Do children selectively favor leaders and prosocial agents in an economic exchange?”, published in *Developmental Psychology*. In this game, agents did not have the possibility to reciprocate. A comparison between sharing rates in Study 1 and 3 would help ascertain whether preschoolers were in Study 1 simply responding moved by pure generosity (or lack thereof) or they were indeed assessing the relative risk of investing in prosocial and antisocial agents. Finding that, compared to preschoolers in Study 1, those in Study 3 share to a reliably lesser extent with the prosocial and the neutral agents can be taken as evidence that preschoolers in Study 1 were not simply guided by altruistic motives.

Participants were 20 preschoolers (9 female, $M_{age} = 5.09$ years, age range: 3.83–5.83), recruited as in Study 1. To detect a difference of 30 percentage points (e.g., we predicted to find no more than or about 32% of the children sharing with the prosocial agent vs. 62% of the children who trusted it in Study 1, or no more than 41% of the children sharing with the neutral agent vs. 71% of the children who invested in it in Study 1), with alpha set at 0.05, a power of 0.80, binomial test, a minimum total sample size of 18 participants was required.

We used the same materials and procedure used in Study 1 (please refer to Margoni et al., 2022), except that children played a dictator game with each of the puppets (prosocial, neutral, antisocial). An experimenter first explained the task

to the child by telling them that they will play with three different puppets and will receive a candy for each game. During the familiarization with the task, children learned that they could keep (*'non-altruistic choice'*) or donate (*'altruistic choice'*) the candy to the puppet. They also learned that if they chose to donate, the puppet would receive three extra candies, and they would not be reciprocated. Children were explicitly told that the puppet would always keep all the received candies.

As in Study 1, children were shown how the game works when a player decides to keep the candy as well as when it decides to donate the candy. This time, however, whereas in the first interaction (with the dog puppet), the experimenter explained to children that they could either keep or donate the candy, in the interaction with the second puppet (cat), children were asked to freely choose whether to donate or keep their candy. If they shared, an explanation of the outcome followed, and in the interaction with the third puppet (cow) the experimenter proceeded to show how the game works when a player decides to keep. If instead the child kept the candy when given the possibility to choose, an explanation of the relevant outcome followed, but in the interaction with the third puppet (cow), the experimenter showed how the game works when a player decides to donate.

In this study, 35% of the children donated to the prosocial agent (versus 62% who trusted it in Study 1), 25% donated to the neutral agent (versus 71% who invested in it in Study 1), and 5% of them donated to the antisocial agent (versus 40% who trusted it in Study 1). To analyze whether giving rates in Study 3 differed significantly from investment rates in Study 1, we ran three binomial test comparing the observed proportions of Study 3 with the estimates found in Study 1, adjusting the p -values using the Bonferroni correction. We found that, compared to Study 1, in Study 3 preschoolers shared reliably less with all the agents (prosocial agent, $p = .039$; neutral agent, $p < .001$; antisocial agent, $p = .002$).

When playing the dictator game, only a minority of children gave the candy to the agents. Crucially, whereas around 2/3 of the preschoolers invested in the prosocial agent in Study 1, only around 1/3 of them gave the candy to it in Study 3. These findings suggest that children's generosity toward prosocial agents or children's indirect reciprocity motives cannot alone account for the preschoolers' investment behavior reported in Study 1.