Evolution and Human Behavior 36 (2015) 256–264

Contents lists available at ScienceDirect

Evolution and Human Behavior

journal homepage: www.ehbonline.org

Original Article

Parochialism in preschool boys' resource allocation

Avi Benozio *, Gil Diesendruck

Department of Psychology and Gonda Brain Research Center, Bar-Ilan University, Ramat-Gan, Israel

ARTICLE INFO

Article history:
Initial receipt 5 October 2013
Final revision received 5 December 2014

Keywords:
Resource distribution
Gender
Dictator game
Minimal group
Altruism
Ownership
Preschool

ABSTRACT

Humans' social interactions are characterized by a tension between individual-regarding preferences—such as others' subjective preferences—and group-regarding preferences—such as others' group membership. Using the dictator game, we demonstrate that this tension characterizes even preschool children's distributive behavior, and that it patterns differently across development and genders. Study 1 contrasted ownership of the resource (mine/ours/not mine) with recipients' minimal group membership (in-group/out-group). We found that only boys generated biased distributions favoring the in-group, and preserved common resources as if they were their own. Study 2 revealed that upon learning of recipients' personal preferences (like/doesn't like resource), boys and girls complied with in-group members' preferences, but only boys also manifested a behavior that opposed out-group members' preferences. The early emergence of a balance between individual- and group-regarding preferences sheds light on the origins of parochialism, and its gender selectivity is consistent with evolutionary accounts of the origins of group cognition in humans.

1. Introduction

Evolutionary biologists note a basic tension between two broad construals underlying human interactions with others. On the one hand, humans can conceive of themselves and others as distinct *individual* agents striving for survival ('Me' and 'You'). Thus, based on inferences about one's or others' self-interests and preferences, humans may compete fiercely over resources and mates, but may also act in altruistic manners, paying personal cost to increase the welfare of specific others. On the other hand, humans' survival has for long been dependent on functioning within collaborative social groups, which were critical for ensuring sustenance and protection. As such, humans are arguably unique in their ability to be group-minded (Greene, 2014; Tomasello & Vaish, 2013)—that is, capable of thinking of one-self and others not only as discrete individuals, but as members of groups with which one is either affiliated ('Us') or not ('Them'). In fact, construing interacting agents in terms of group membership may on occasion override the construal of such agents as individuals. For instance, there may be situations in which cooperation with in-group members for the benefit of the group overtakes one's self-interests ('Us' ahead of 'Me'), and situations in which in-group interests promote hostility towards out-group members ('Us' ahead of 'Them')—two hallmarks of "parochialism" (De Waal, 2008; Gintis, Bowles, Boyd, & Fehr, 2003; Price, Cosmides, & Tooby, 2002).

Developmental studies reveal that from a young age children can adjust their behavior to match others' individual desires, intentions, or preferences (e.g., Repacholi & Gopnik, 1997; Warneken & Tomasello, 2009). Moreover, by kindergarten-age, children hold rich concepts and biased attitudes regarding social groups (e.g., Deeb, Segall, Birnbaum, Ben-Eliyahu, & Diesendruck, 2011; Dunham, Baron, & Carey, 2011). Clearly, then, the capacity to regard the preferences of individuals, and those of a group, is available already prior to school entry. The main goal of the present study was to assess how young children solve situations in which these two alternative construals of others—referred to as individual- and group-regarding preferences—clash. In particular, we assessed situations that required children to make a behavioral decision, namely how to distribute resources, based on either of these two preferences.

1.1. Individual- and group-regarding preferences in resource distribution

Among adults, behavioral distribution tasks have been commonly used to assess participants' underlying motivations (e.g., other-regarding preferences such as altruism, spite, intention-based reciprocity, guilt or inequality aversion; Fehr, Glätzle-Rützler, & Sutter, 2013; Fehr & Schmidt, 2006). For example, using the 'Dictator game', studies have examined how adults distribute resources between themselves and a recipient in one-shot unreciprocated interactions. Importantly for the present purposes, these studies have found that accentuating the "individual" vs. "group" aspects of participants led to different distribution patterns. For instance, emphasizing the individual attributes of the 'dictator' (e.g., entitlement, intentionality) or of the recipient (e.g., 'deserving' or 'wealthy'), affected adults' allocation (Blount, 1995; Bohnet & Frey, 1999; Engel, 2011; Falk, Fehr, & Fischbacher, 2008; Hoffman, McCabe, Shachat, & Smith, 1994). Orthogonally, manipulations of the group membership of recipients (Chen & Xin, 2009), or of the ownership of the resources (Fehr & Fischbacher, 2003), also

* Corresponding author. Department of Psychology and Gonda Brain Research Center, Bar-Ilan University, Ramat-Gan, 52900, Israel. Tel.: +972 548 162161.
E-mail address: avi.benozio@gmail.com (A. Benozio).

http://dx.doi.org/10.1016/j.evolhumbehav.2014.12.002
1090-5138/

impacted adults' distribution. By and large, adults distribute more resources to in- than out-group recipients, and even apply altruistic punishment in order to preserve group resources.

The past few years has seen a surge of developmental studies on resource distribution. Infants already seem to hold an expectation that resources will be distributed fairly between recipients, as measured in their looking-time to equal vs. unequal distribution events (Geraci & Surian, 2011; Schmidt & Sommerville, 2011; Sloane, Baillargeon, & Premack, 2012). As they mature, children manifest more nuanced patterns of expectations and evaluations that also affect their own distributive behavior (Shaw, DeScioli, & Olson, 2012). These nuances can in fact be conceptualized also in terms of the extent to which children are sensitive to individual- vs. group-regarding preferences. Specifically, the child's self-interest is dominant among 3- to 4-year olds across cultures (Fehr, Bernhard, & Rockenbach, 2008; Rochat et al., 2009), as well as among 5-year olds, who prefer to maintain their relative advantage over another individual, even at a personal cost (Sheskin, Bloom, & Wynn, 2014). Moreover, information about individual others, such as animacy (Castelli, Massaro, Sanfey, & Marchetti, 2010), previous history of reciprocity (House, Henrich, Sarnecka, & Silk, 2013) or collaboration (Hamann, Warneken, Greenberg, & Tomasello, 2011), also impact children's distribution behavior.

At the same time, young children are also sensitive to group aspects of distribution contexts. For instance, 3- and 4-year olds manifested biased distributions in favor of their gender-group (Dunham et al., 2011), 5-year olds distributed more resources towards an anonymous recipient when they were watched by in-group members (but not when watched by out-group ones) (Engelmann, Over, Herrmann, & Tomasello, 2013; see also Shaw et al., 2014), and 6- to 8-year olds distributed more positive stimuli to an in-group member and more negative stimuli to an out-group member, manifesting what Buttelmann & Bohm (2014), labeled 'in-group love' and 'out-group hate', respectively.

Crucially, in the developmental studies reviewed above, children did not have to choose *between* individual- versus group-regarding preferences. Consequently, their behaviors revealed sensitivity to whichever preference was available. Here we present children with a systematic conflict between individual- and group-regarding preferences, thus emulating complex everyday interactions. Our goals were to evaluate whether children's allocation rates vary according to these distinct concerns, and to trace the development of their allocation patterns.

1.2. Gender

Interestingly, some gender differences have been found in distributive tasks among children. In particular, 7- and 8-year-old boys have been found to have stronger parochial tendencies than girls, e.g., favoring more their in-group and even harming the out-group (Buttelmann & Bohm, 2014; Fehr et al., 2008). One possible account of such gender differences has to do with the different socialization processes young Western children undergo (Rose & Rudolph, 2006). In particular, from early on, boys are arguably encouraged to participate in competitive large group interactions, and girls in empathic intimate ones.

Alternatively, these gender differences also resonate with evolutionary accounts arguing that males might be more sensitive than females to group-regarding aspects (Geary, Byrd-Craven, Hoard, Vigil, & Numtee, 2003; McDonald, Navarrete, & Van Vugt, 2012; Navarrete, McDonald, Molina, & Sidanius, 2010; Tooby & Cosmides, 1988). Specifically, the evolutionary argument is that males have been the ones most likely to benefit from expanding their mating circle across groups, and were—and still are—the most vested in intergroup conflict (McDonald et al., 2012; Van Vugt, De Cremer, & Janssen, 2007). Females, in turn, were more focused on the proximate individuals serving as potential mates, and in cooperation within their immediate social circle (Baumeister & Sommer, 1997; Navarrete et al., 2010). Following these characterizations, parochialism has been hypothesized to be a particularly male trait.

Based on these claims, we pose an additional research question; namely, whether reliance upon individual- and group-regarding preferences differs across genders at younger ages than previously reported.

1.3. The present studies

Overall, the current research targets two main questions. First, how 3- to 6-year-old children balance between individual- and group-regarding preferences, when both are available simultaneously? And second, does the possible interaction between these preferences differ across age and genders?

In two different studies using Dictator Games, we pitted against each other variables that represent individual- and group-regarding preferences. Specifically, study 1 juxtaposed recipients' *group membership* (in-group, out-group) with different *ownership* conditions of the resources to be distributed. Specifically, one condition enhanced the dictator's personal interest (mine condition), a second condition was aimed at decreasing the personal interest of the dictator (not mine), and a third condition, in which the resource was described as belonging to the entire kindergarten (ours), allowed the dictator to manifest sheer consideration of the group's interest. This latter condition is of particular theoretical importance because it emulates one of the most common functions of intergroup conflict, namely, protecting and increasing common resources. In all ownership conditions, it was made clear to children that they were free to distribute as many of the resources to the anonymous recipient as they wished.

In study 2, the clash between individual- and group-regarding preferences was operationalized by forcing participants to consider the two alternatives with regard to the same recipient. In particular, study 2 depicted recipients both, as exemplars of a group—i.e., manipulating *group membership* as in study 1—as well as individuals—i.e., by telling participants about the *recipient's individual preference* regarding the to-be allocated resource (like, and does not like the resource).

Study 1: ownership and group membership

2. Method

2.1. Participants

Participants were 235 3–6 years old ($M = 5$, $SD = 11$ months; 46% girls), divided into 141 3–4 year-olds ($M = 4.3$, $SD = 6$ months; 47% girls) and 87 5–6 year-olds ($M = 6$, $SD = 5$ months; 45% girls). The younger children were recruited from several pre-kindergartens, and the older children from several kindergartens, all in the same Israeli city. Participants were from an average SES background, and all had signed parental permission to participate. Seven children were excluded for various reasons (e.g., procedure interrupted by the teacher, child failed to count stickers, child quit in the middle).

2.2. Procedure

Children played the dictator game individually in a quiet room, with 10 different stickers as allocation resources. In order to avoid a possible confounding effect of sticker "attractiveness" (Blake & Rand, 2010), we used stickers that were moderately attractive, as determined in a pretest with a separate sample of children (matched per age and gender) (see Supplementary Information #1).

The experimenter, who was present for the entire procedure, started by explaining to children that there are two groups in the "stickers game" that they will be playing—the 'blue' group and the 'yellow' one. Children were randomly assigned to one of these novel and arbitrary color-groups by having 3 color-matched stickers affixed to

their shirt. Participants were not informed about the process that led to their group assignment, and competition between the groups was never mentioned.

Next, the *ownership* of the resources was established, according to one of three between-participants conditions—mine, not mine, or ours. Specifically, the experimenter placed a set of 10 different stickers between the child and a computer screen (in which a recipient would be presented later), and described to the children who owned the stickers. In the mine condition, the experimenter told children that, *"these stickers are yours"*, thus establishing a high personal interest on the part of the children. In contrast, in the not mine condition, the self-interest of the child was reduced, as the experimenter mentioned that the stickers belonged to her (*"These stickers are mine"*). In the third condition (Ours), the stickers were presented as a common resource of the kindergarten (*"These stickers belong to the entire kindergarten"*). Note that in Hebrew, the colloquial word for "kindergarten" or "pre-kindergarten" is the same: "*gan*". Moreover, given that there is only one class per pre-kindergarten or kindergarten, it was clear to children that "gan" referred to their own class. After ascertaining the ownership of the stickers, the experimenter went on to count the 10 stickers, together with the child.

In addition to the manipulation of *ownership*, we manipulated the *group membership* of the potential recipients. Namely, the experimenter introduced to children an unfamiliar recipient (via a 10 seconds video), who was an in-group member, an out-group, or neutral. The group membership was indicated by the color (yellow or blue) of the stickers affixed to the recipients' shirts: same color as the child's (in-group), different (out-group), or no stickers (neutral). Neutral recipients were presented primarily to break the flow of the game, and thus minimize a possible automatic strategy to give more to those "like me". In other words, we expected that neutral recipient trials would increase the overall variance in children's responses.

Pre-edited videos were used to present an unfamiliar 'live' recipient. Unfamiliar recipients were used in order to avoid confounds such as familiarity, friendship, or kin-relationship (Fehr et al., 2008; Moore, 2009; Olson & Spelke, 2008), and focus instead on 'group' per se. The recipients were filmed sitting still, facing the camera, and with no specific emotional expressions or sound. The absence of communication between the dictator and the recipient allowed maintaining the anonymity of the dictator. Recipients were age- and gender-matched to each participant, and were introduced by the experimenter with a different name, e.g., "*This is Nadav/Maayan; he/she is your age.*" The experimenter then verified that children recognized the recipient's group membership (yellow, blue, or neither) by explicitly asking, *"to which group does Nadav/Maayan belong?"*. All children responded correctly to this question.

The experimenter proceeded with the distribution instructions, according to the participant's *ownership* condition:

Mine: "*Since these are your stickers, you can decide how many to give to Nadav/Maayan and how many to keep for yourself. You can give zero, one, two, three, four…up to ten stickers.*"

Not mine: *"These stickers are mine but I don't know how to distribute them. Can you show me how many to give to Nadav/Maayan and how many to keep for myself. You can give…"*

Ours: "*These stickers belong to the entire kindergarten, but it is your decision how many to give to Nadav/Maayan and how many to keep in the kindergarten. You can give…*"

In all three conditions, the experimenter emphasized the legitimacy of all possible distributive options, and children were explicitly entitled to make the distributive choice, thus reducing possible concerns about property-rights limitations (Nancekivell, Van de Vondervoort, & Friedman, 2013). It was also made clear to the children that whereas in the mine condition the remaining resources would eventually go back to them, in the ours condition the resources would return to the kindergarten, and in the not mine they would go to the experimenter. This was accomplished by explicitly telling—and showing—children that unallocated stickers were placed in an envelope explicitly marked with the child's (mine), the experimenter's (not mine), or the kindergarten's (ours) name written on it. Thus the main construct manipulated here was the extent to which children took into account their self-interest (mine), the group-interest (ours), or someone else's interest (not mine).

Each child played three rounds of the dictator game, each with a new and different type of 10 moderately attractive and slightly distinct stickers (e.g., different "cars" stickers), and with a different recipient from the various group membership statuses, presented in counterbalanced manner within-participants. In order to make sure that children remembered the instructions, *Ownership* statements were repeated in each round. The raw dependent variables were the number of stickers each child allocated to the different types of recipients.

3. Results

We used a generalized linear mixed model analysis (GLMM), in which children were nested within kindergarten. The variables of interest: *group membership*, *ownership*, *gender*, and *age group* (3–4/5–6 year-olds) were entered as fixed effects, whereas kindergarten (i.e., which of the pre- or kindergartens children attended) and in-group color (blue or yellow) were entered as random effects. A log-linear link function was used since the dependent variable was positively skewed, and a better information criteria was found for the log-linear (Akiak = 651.03, Bayes = 667.2) than the linear model (Akiake = 2007.95, Bayes = 2024.13). Nonetheless, the results were quite similar for both models (Supplementary Information #3). To be consistent with the GLMM, all post-hoc analyses used log transformation on the dependent variables. In order to reduce degrees of freedom, and given that "neutral" trials were included primarily for methodological reasons, the main analyses were conducted including only allocations towards in- and out-group recipients. Analyses including the neutral trials rendered a similar overall pattern (see Supplementary Information #4).

The analysis revealed complex behavioral patterns, including main effects of *ownership*, *group membership*, and *age group*, and a two-way interaction between *age group* and *ownership*. These effects are further detailed in the Supplementary Information (#2), as they were subsumed under a three-way interaction among *group membership*, *ownership*, and *gender* ($F_{2,432} = 7.05$, $p < .01$, $\eta^2 = 1\%$) (Fig. 1A), as well as a four-way interaction that also included *age group* ($F_{2,432} = 4.09$, $p < .05$, $\eta^2 = 2\%$) (Fig. 1B). The latter was followed-up by conducting separate GLMMs for each gender, with the same setting as the initial model.

3.1. Boys

A main effect of *group membership* ($F_{1,432} = 19.9$, $p < 0.001$, $\eta^2 = 4\%$) was found, showing higher allocation towards in-group recipients ($M = 38\%$, $SD = 24\%$) over out-group ones ($M = 34\%$, $SD = 23\%$). A second main effect of *ownership* was also found ($F_{2,234} = 17.32$, $p < .001$, $\eta^2 = 12\%$). Post-hoc analyses revealed that boys treated personal (mine) and group (ours) resources in a similar fashion ($M = 30\%$, $SD = 17.3\%$; $M = 33.2\%$, $SD = 21\%$, respectively), and the distribution rates of both were lower than the distribution rates in the not mine condition ($M = 45.7\%$, $SD = 19\%$) ($p < .001$, Cohen's $d = 0.71$; $p < .01$, Cohen's $d = 0.68$, respectively; Bonferroni).

A two-way interaction between *group membership* and *ownership* was also found ($F_{2,234} = 3.51$, $p < .05$, $\eta^2 = 2\%$), revealing that in-group recipients received more than out-group ones under the mine ($M = 33.9\%$, $SD = 21.5\%$, $M = 25.8\%$, $SD = 19.1\%$, respectively; $t_{37} = 2.66$, $p < .01$, Cohen's $d = 0.43$) and ours conditions ($M = 35.8\%$, $SD = 23.8\%$, $M = 30.8\%$, $SD = 23.3\%$, respectively; $t_{39} = 1.83$, $p < .05$, Cohen's $d = 0.29$), but not under the not mine condition (Fig. 1A).

An additional trend was found for the interaction between *group membership*, *ownership*, and *age group* ($F_{2,234} = 2.73$, $p = .067$, $\eta^2 = 3\%$). In order to assess the specific effect sizes per *age group*, separated

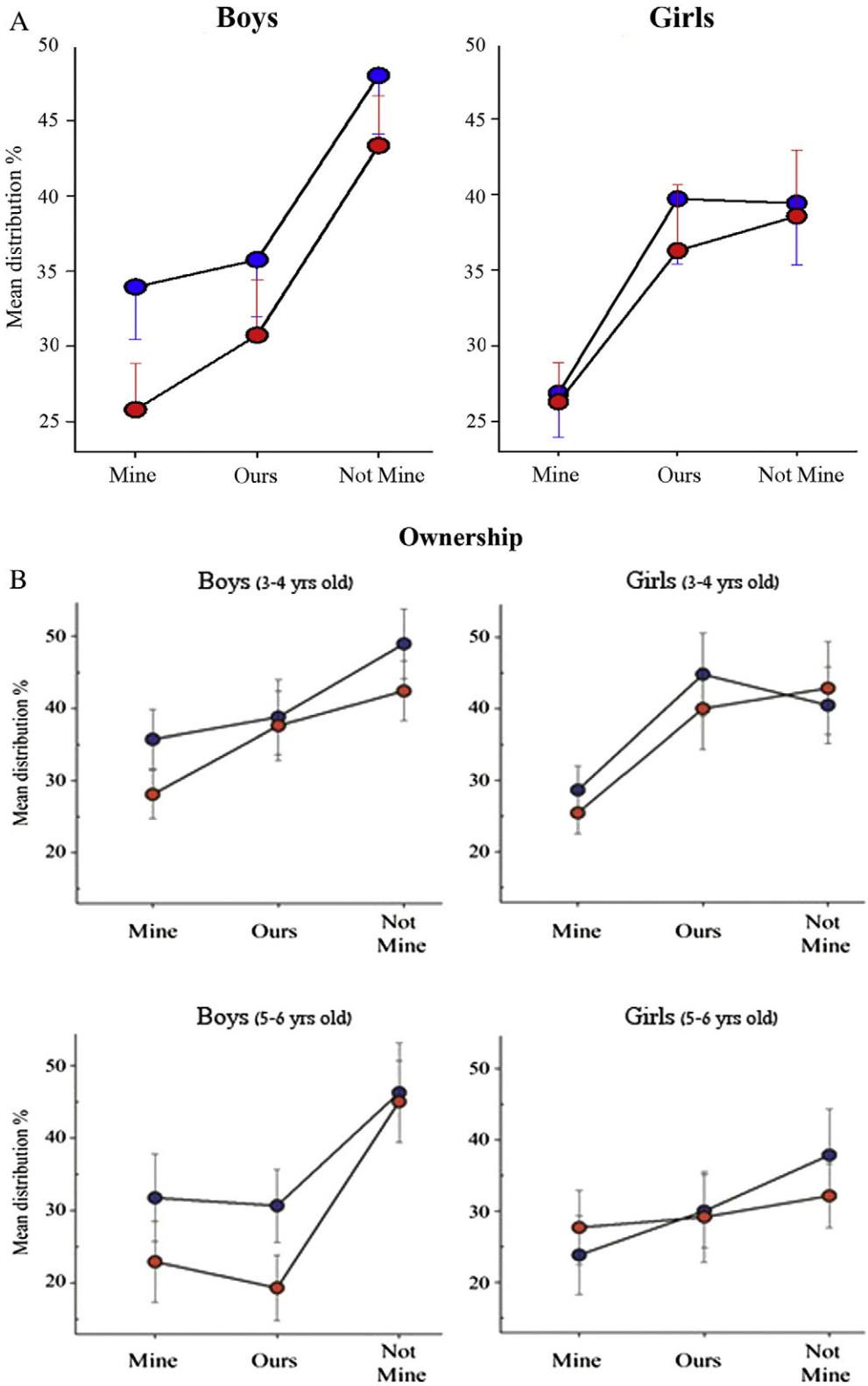

Fig. 1. A: Study 1—distribution percentage to in-group (●) and out-group (●) recipients, across *ownership* conditions and *gender*. Error bars represent standard error of the mean. B: Study 1—distribution percentage to in-group (●) and out-group (●) recipients, across *ownership* conditions, *gender*, and *age*. Error bars represent standard error of the mean.

repeated measures ANOVAs were conducted for each age group. These ANOVAs replicated the main effect of *group membership* among both 3–4 ($F_{1,72} = 3.89$, $p = .05$, $\eta^2 = 5.1\%$) and 5–6 year-old boys ($F_{1,45} = 5.28$, $p < .05$, $\eta^2 = 10.5\%$), as well as the main effect of *ownership* ($F_{2,72} = 3.19$, $p < .05$, $\eta^2 = 8.1\%$; $F_{2,45} = 5.49$, $p < .01$, $\eta^2 = 20\%$; 3–4 and 5–6 s, respectively). Interestingly, however, post-hoc analyses on the main effect of *ownership* revealed that allocation rates among 3–4 year-old boys differed only between the mine ($M = 32\%$, $SD = 15.6\%$) and the not mine ($M = 45.7\%$, $SD = 20\%$) conditions ($p < .05$, Cohen's $d = 0.62$, Bonferroni), whereas among 5–6 year-old boys, allocations under both the mine ($M = 27.4\%$, $SD = 19.5\%$) and ours ($M = 25\%$, $SD = 16\%$) conditions, were significantly lower than those in the

not mine condition ($M = 45.6\%$, $SD = 17.9\%$) (both $p < .05$, Cohen's $d = 0.8$ and 1.48. respectively, Bonferroni) (Fig. 1B). In other words, it seems that the main developmental change evinced among boys was in terms of their treatment of common resources, which were protected more systematically by older than younger boys.

3.2. Girls

Unlike the findings on boys, the analyses of girls' behaviors showed no main effect of *group membership* ($F_{1,198} = 0.38$, n.s), with girls allocating a similar number of stickers to in- and out-group recipients (see Fig. 1A). The main effect of *ownership* was significant ($F_{2,198} = 6.09$, $p < .01$, $\eta^2 = 6\%$), however post-hoc analyses revealed that the pattern for girls was slightly different than the one found for boys. Namely, girls' distribution rate in the mine condition ($M = 26.6\%$, $SD = 14.6\%$), was lower than the rates in *both* the ours ($M = 38\%$, $SD = 23.8\%$) and not mine ($M = 39\%$, $SD = 22.4\%$) conditions ($p < .05$, Cohen's $d = 0.48$, $p < .01$, Cohen's $d = 0.4$. respectively, Bonferroni). Distribution rates in the latter two conditions were not significantly different. Thus, whereas boys treated personal and group resources in a similar fashion (i.e., ours = mine), girls treated group resources similarly to impersonal ones (i.e., ours = not mine) (Fig. 1A).

An additional three-way interaction was found among *group membership*, *ownership*, and *age group* ($F_{2,198} = 4.09$, $p < .05$, $\eta^2 = 2\%$). Breaking down this interaction by age group revealed that 3–4 year-old girls showed a main effect of *ownership* ($F_{2,198} = 4.09$, $p < .05$, $\eta^2 = 10.2\%$), distributing less under the mine condition ($M = 27\%$, $SD = 12.6\%$), compared with both the ours ($M = 42.4\%$, $SD = 25.2\%$) and not mine conditions ($M = 41.7\%$, $SD = 24.9\%$) ($p = .5$, Cohen's $d = 0.79$; $p < .05$, Cohen's $d = 0.65$. respectively, Bonferroni). In contrast, the analysis of 5–6 year-old girls revealed no significant effects (Fig. 1B).

4. Summary

Study 1 demonstrated the interplay between individual- and group-regarding preferences across gender and age. First, we observed that overall, the less self-interest children had in maintaining the resources (not mine vs. mine ownership conditions), the more children were willing to distribute. Second, the findings revealed how boys—but not girls—were substantially affected by group-regarding preferences, in two unrelated ways. Namely, boys (a) favored in-group recipients in their resource distribution, and (b) protected common goods as if they were personal ones. Thus, both in terms of recipients' group membership and resources' ownership, 3- to 6-year-old boys manifested signature markers of parochialism—markers that had not been evinced at these ages in previous studies (Dunham et al., 2011; Fehr et al., 2008).

It could be argued that these gender differences might have been partly due to girls being less aware of the minimal-group manipulation than were boys. We believe this suggestion is problematic for a couple of reasons. First, as we reported, girls and boys were equally proficient in identifying the group membership of the recipients. Consequently, it would seem that the lesser impact of this manipulation on girls than on boys is precisely in line with the kind of conclusion suggested above regarding gender differences in sensitivity to group-factors. Second, a potential differential awareness to the minimal group manipulation cannot account for the gender differences in the treatment of common goods ('ours').

Interestingly, developmental changes were observed among both boys and girls, and in both cases the changes were along the lines of the types of preferences revealed as most salient for each gender. Specifically, whereas 3–4 year-old girls significantly distinguished between the ownership conditions involving their personal interests (mine) and those that did not (ours and not mine), 5–6 year-old girls neglected such considerations, and maintained their distribution rate roughly between 25 and 35% across ownership conditions. In other words, the changes were in terms of individual-regarding preferences, which had no effect among 5–6 year-old girls.

In turn, boys seemed to have become more sensitive to group-regarding preferences along development. This was evinced by the findings that 5–6 year-old boys manifested a finer understanding of the ours condition, and that the effect size for group membership among 5–6 year-olds was twice the size of that found among 3–4 year-olds (Fig. 1B).

Overall, children's distribution rates in the different ownership conditions also help rule out two possible concerns one might have had with that manipulation. First, one could have expected children not to feel comfortable giving away resources that were not their own (i.e., feeling they did not have property rights over the resources, and thus were not entitled to give them). The fact that children gave more stickers when these belonged to the experimenter (not mine) than to themselves (mine), indicates that the above was not an issue for children. Putting it differently, children seemed to have accepted the experimenter's explicit instruction that they were completely free to decide how to distribute the stickers. A second plausible expectation is that children would prefer to give resources to "concrete" individuals (i.e., the recipients visible in the videos), than to "abstract" ones (i.e., the "kindergarten"). Again, however, the findings indicate otherwise. Girls, and even more so boys, gave fewer stickers to the video-recipients than to their kindergartens (approximately 35 and 65% respectively, across genders). In sum, it seems that children indeed interpreted the different ownership conditions as intended by us; namely, as manipulating the interests of different parties: the child, the group, and the experimenter.

Study 2: personal preferences and group membership

Study 1 operationalized a clash between individual- and group-regarding preferences via two separate dimensions: the dictator's relation to the resources (i.e., through ownership), and the dictator's relation to the recipients (i.e., through group membership). Study 2 also presented a clash between these two kinds of preferences, but did so via the same dimension; namely, information about the recipients. In study 2, we provided participants with information about the group membership of recipients (as in study 1), but also individuating information about the recipients' personal preferences regarding the stickers to be allocated (i.e., whether or not they 'like' the stickers). We hypothesized that by describing the personal preferences of recipients, we would encourage children to construe them as individuals. That is, this information might lead children to take into account recipients' personal desires, rather than blindly protect group interests.

A further theoretical advantage of combining these two sorts of information about recipients is that it allowed assessing different motivations possibly underlying resource distribution. Namely, the combination allowed us to assess whether children would manifest behavior that is costly to them but meets the recipients' personal preferences, behavior that is indifferent to the recipients' preferences, or behavior that is costly to children but opposes the recipients' personal preferences.

5. Method

5.1. Participants

A new sample of 141 3–6 years old children ($M = 5$, $SD = 11$ months; 54% girls), divided into 81 3–4 year-olds ($M = 4.4$, $SD = 3$ months; 56% girls) and 60 5–6 year-olds ($M = 5.6$, $SD = 6$ months; 52% girls) participated. Participants were from the same background as those tested in study 1 (see Supplementary Information #5).

5.2. Procedure

The set-up and procedure were identical to those implemented in study 1, except for the following differences. Recipients' *personal preferences* were manipulated between-participants, such that half of the participants were told—prior to their distribution

decision—that the recipient likes the stickers to be distributed, and the other half were told that the recipient doesn't like them. Each child played two rounds of the dictator game—one with an in-group and one with an out-group, in counterbalanced order across participants, as implemented in study 1. For each round, a new and different type of 10 moderately attractive stickers was used as the allocation resource. Ownership of the resource was held constant as ours.

6. Results

The model and analyses were identical to those employed in study 1. Two of the most meaningful findings are detailed—a three way interaction among *group membership*, *recipients' preference*, and *gender* ($F_{1,266} = 33.01$, $p < .001$, $\eta^2 = 2\%$) (see Fig. 2A), and a four-way interaction that also included *age group* ($F_{1,266} = 12.57$, $p < .001$, $\eta^2 = 1\%$) (Fig. 2B). As in study 1, this interaction was followed by conducting separate GLMMs per gender. Additional results are further detailed in the Supplementary Information #6 (main effect of *age group*, two-way interaction between *group membership* and *recipients' preferences*, and a three-way interaction among *group membership*, *recipients' preference*, and *age group*).

6.1. Boys

The main effect of *recipients' preferences* and the two-way interaction between *group membership* and *recipients' preferences* were significant, and are also detailed in the Supplementary Information (#6). Importantly, the three-way interaction among *group membership*, *recipients' preferences*, and *age group* was significant ($F_{1,122} = 18.37$, $p < .001$, $\eta^2 = 4\%$). This interaction was further followed with separate repeated-measures ANOVAs per age group.

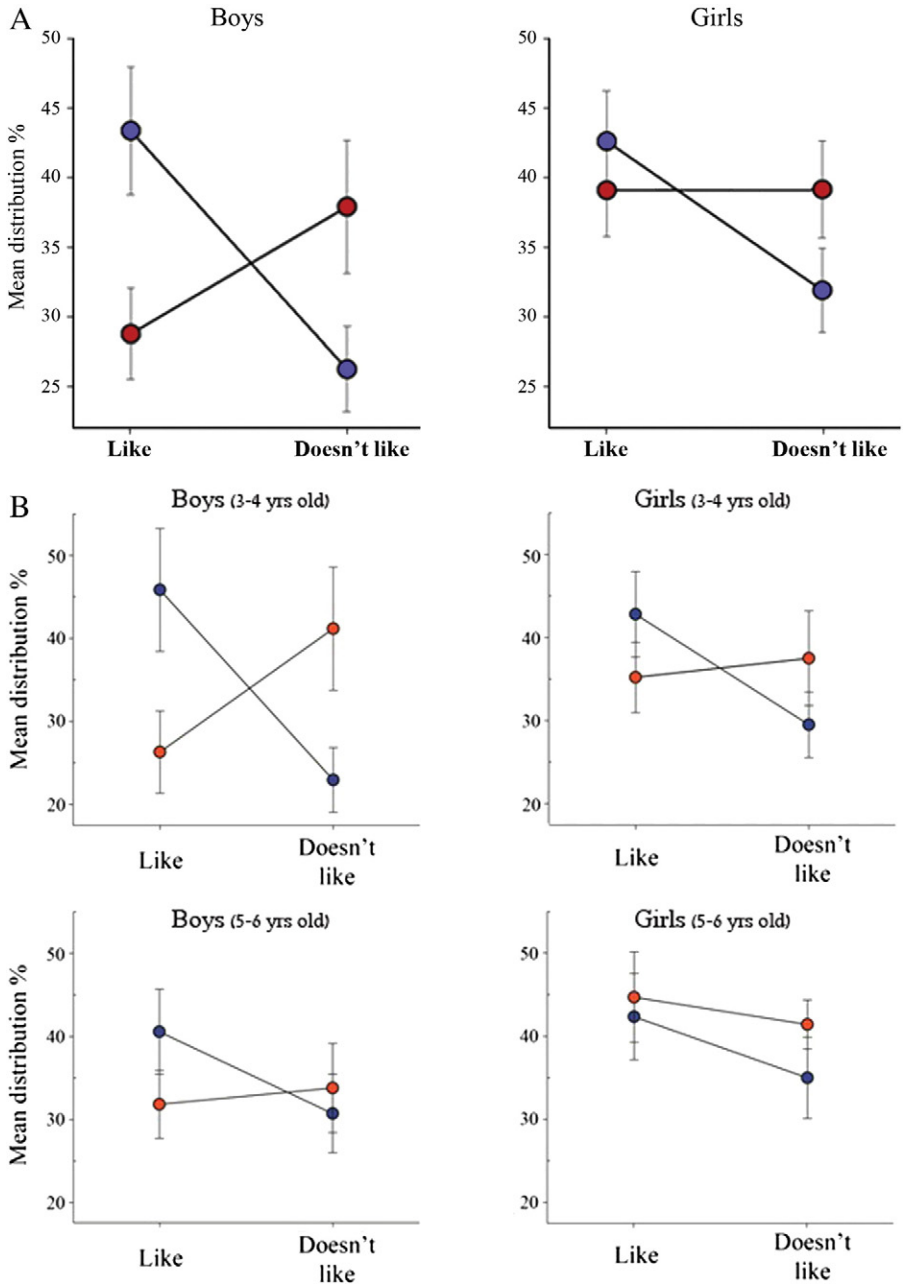

Fig. 2. A: Study 2—distribution percentage to in-group (●) and out-group (●) recipients, across *recipients' preference* conditions and *gender*. Error bars represent standard error of the mean. B: Study 2—distribution percentage to in-group (●) and out-group (●) recipients, across *recipients' preference* conditions, *gender*, and *age*. Error bars represent standard error of the mean.

Among 3–4 year-old boys, only a two-way interaction was found between *recipients' preferences* and *group membership* ($F_{1,34} = 9.45$, $p < .001$, $\eta^2 = 22\%$). Independent t-tests between conditions revealed a significant difference between conditions in allocation rates both to in-group ($t_{34} = 2.6$, $p < .01$, Cohen's $d = 0.86$), as well as out-group recipients ($t_{34} = 1.7$, $p < .05$, Cohen's $d = 0.55$). Crucially, these effects were in opposite directions. Namely, when the recipient was an in-group member, 3–4 year-old boys gave more stickers when the recipient liked the resources ($M = 46\%$, SD = 32%), than when he did not like them ($M = 23\%$, $SD = 16\%$). However, when the recipient was an out-group member, boys gave fewer stickers when the recipient liked the resources ($M = 26\%$, $SD = 22\%$), than when he did not like them ($M = 41\%$, $SD = 31\%$). A similar pattern was found among 5–6 year-old boys (Fig. 2B), but none of the effects reached significance.

6.2. Girls

Among girls, the main effects of *group membership* and *age group*, and the two-way interaction between the two were significant, and are detailed in the Supplementary Information (#7). An additional two-way interaction between *recipients' preferences* and *group membership* was found ($F_{1,144} = 16.41$, $p < .001$, $\eta^2 = 10\%$) (Fig. 2A). Independent t-tests revealed a difference across *recipients' preferences* only in regard to in-group recipients ($t_{74} = 2.2$, $p < .05$, Cohen's $d = 0.52$), meaning that girls gave more stickers to an in-group recipient who liked the stickers ($M = 42.6\%$, $SD = 23\%$) than to one who did not ($M = 31.8\%$, $SD = 18\%$). Allocations to out-group recipients did not vary across preference conditions among girls ($M = 39\%$ $SD = 22\%$; $M = 39.1\%$, $SD = 21\%$).

7. Summary

Consistent with study 1, study 2 sheds additional light on the interplay between individual- and group-regarding preferences across gender and age, in two meaningful manners. First, girls demonstrated a certain degree of sensitivity to group membership: they complied with the personal preferences of in-group recipients, but did not with those of out-group recipients. Curiously, they were altogether quite egalitarian towards the latter, distributing about 40% of the stickers, regardless of an out-group recipient's preference. Second, although no meaningful developmental differences were found among girls, boys did reveal changes across age. Specifically, whereas no significant effects were found regarding 5–6 year-old boys, significant effects were found among 3–4 year-olds. In particular, the latter took into account both individual- and group-regarding preferences to either comply with the preferences of an in-group recipient (e.g., giving more to an in-group recipient who likes the resource) or to do the exact opposite when facing an out-group (e.g., giving more to an out-group recipient who does not like the resource).

This interaction between the recipients' preferences and group membership also helps rule out a possible strategy that children could have adopted. Namely, children could have interpreted the recipients' explicit preferences as indices of the stickers' values; i.e., "liked" stickers are worth more than "disliked" stickers. However, if that had been the case, then we would have expected children to consistently give fewer stickers to recipients when these had expressed liking than disliking of the stickers. The fact that both boys and girls gave *more* liked than disliked stickers to in-group recipients, reinforces the interpretation that children engaged in group-regarding preferences.

Finally, in a somewhat surprising contrast with study 1, here we found that the younger boys were the ones most affected by the manipulated factors. A possible solution for this puzzle will be presented in the General discussion.

8. General discussion

The goals of the present studies were to assess the development of young children's reliance on individual- vs. group-regarding preferences, and the extent to which this process varies across genders. The two studies manipulated these types of preferences in various ways, and the findings revealed complex interactions among the relevant factors. In particular, the findings shed light on how children's distributive behavior may derive from various motivations. Most importantly, however, the findings reveal how group-regarding preferences are evident already at ages 3–4 years, especially among boys.

8.1. From behaviors to motivations

There has been an extensive debate as to whether children are intuitively selfish or altruistic in their interactions with others (Fehr et al., 2008; Warneken & Tomasello, 2009). The debate is often informed by evidence documenting the extent to which children engage in or appreciate egalitarian distributive behavior, and/or prosocial helping behavior. Our findings indicate that caution should be exercised when interpreting children's behaviors at face-value, primarily because such behaviors might derive from distinct motivations.

First, the findings from study 1 on 'ownership' understanding alone, suggest that the extent to which young children are selfish or egalitarian during distributive behavior varies substantially depending on their self-interest. On the one hand, 3–4 year-olds distributed more stingily under conditions with high self-interest (mine), matching previous studies in which the resource belonged to the dictator (Benenson, Pascoe, & Radmore, 2007; Blake & Rand, 2010; Fehr et al., 2008). On the other hand, in the absence of personal ownership (not mine), 3–4 year-olds were more egalitarian, a pattern previously suggested to take place among children judging third-party distributions (Blake, McAuliffe, & Warneken, 2014; Smith, Blake, & Harris, 2013), or among 4 year olds in interdependent contexts such as cooperation, joint effort, or impression management (Kanngiesser & Warneken, 2012; Shaw et al., 2014; Tomasello & Vaish, 2013). Here we show that even in the absence of any previous interaction with an actual partner (e.g., cooperation), a mere understanding of ownership statuses provided a range of behavioral outcomes. Taken together, children—especially the younger ones tested here—distribute much less when they have a vested interest in the resources, compared to when no personal interest is involved.

Second, the findings from study 2 revealed how similar behaviors might in fact derive from quite distinct underlying motivations. Perhaps the most striking demonstration of this comes from looking at young boys' distribution rates to in- and out-group recipients. In particular, 3–4 year-old boys gave as many stickers to an in-group recipient who liked the stickers as they did to an out-group recipient who did not like them. Similarly, 3–4 year-old boys gave as many stickers to an in-group recipient who did not like the stickers, as they did to an out-group recipient who liked them. Thus, when facing an in-group recipient, children tuned their behavior to meet the recipient's personal preferences, relinquishing stickers in order to increase the welfare of an in-group recipient. Strikingly, in turn, when facing an out-group recipient, the pattern was mirrored. Here children sacrificed resources, even though their increased distribution was in opposition to the recipient's preferences. In this sense, rather than sensitizing boys to an equal individual, information about the personal preferences of an out-group member backfired, allowing boys to demonstrate 'out-group hate' more effectively.

Third and more generally, our findings call for a more critical interpretation of the notion of pro-social behavior. Specifically, pro-social behavior is commonly defined as acts intended to benefit other individuals. However, it might be argued that this notion should be broadened to include also acts that benefit a group (Batson, 2011; Janoff-Bulman & Carnes, 2013). In this light, seemingly different behaviors revealed in our studies—such as boys' stronger sensitivity to group-preferences

and girls' to individual-preferences—may all be categorized as pro-social behaviors, only towards different social entities: groups and individuals. Whether groups and individuals have equal moral standing as subjects of prosocial behavior is the focus of much theoretical debate.

8.2. Some implications for morality

Intimately related to the social–cognitive question of whether and when adults—and children—can construe others as individuals and as group members, there is a debate as to the equivalence in the moral status of considerations deriving from these two construals. To illustrate this debate within the context of the present studies, one may ask whether behavior that takes into account group-regarding preferences (e.g., in-group favoritism), even at the expense of individual-regarding preferences (e.g., a person's desires), is morally justifiable.

On one side of the debate, a number of scholars define moral values and moral behaviors as those involving concerns about 'individual' agents, thus emphasizing avoidance of harm and equal rights for all, as universally primary values (Gray, Young, & Waytz, 2012; Killen & Smetana, 2008; Rutland, Killen, & Abrams, 2010; Turiel, Hildebrandt, Wainryb, & Saltzstein, 1991). On the other side of the debate, there are scholars who in light of the diversity in values found across cultures, suggest that concerns with the interest of the group—such as group-loyalty and obedience to authority—may have equal moral standing to concerns about individuals (Graham & Haidt, 2012; Graham et al., 2013; Shweder, 2012; Shweder, Much, Mahapatra, & Lawrence, 1997; Snarey, 1985).

The current studies on young children's balancing of individual- and group-regarding preferences, provide evidence on how early these different concerns weigh in on children's moral behavior, and how they change with development. We will address gender differences in the next section, but for the present point it is noteworthy that we found that in-group love and out-group hate can be demonstrated through distributive behavior already among 3–4 years old boys (to a certain extent in study 1, and more clearly in study 2). In other words, already at the youngest age tested here, boys gave substantial weight to group-regarding preferences, even when these directly conflicted with individual-regarding preferences (e.g., an out-group recipient's dislike of the resources).

Interestingly, unlike 3–4 year-old boys, 5–6 year-old boys did not demonstrate any group bias in study 2. This may seem at odds with a recent finding demonstrating out-group hate among 6–8 year olds boys (i.e., giving negative stimuli to out-group members) (Buttelmann & Bohm, 2014). A possible resolution to this seeming contradiction is that when children are presented *only* with information that involves group-regarding preferences (e.g., minimal group membership, as in Buttelman & Bohm), then indeed older boys will unleash behavior that is consistent with in-group favoritism and out-group derogation. In fact, the older boys in study 1 did exactly that. However, when also provided with information that explicitly implicates individual-regarding preferences—as done in study 2—then older boys seem to regulate their group bias. This interpretation is consistent with the finding that with age, children evaluate unequal distributions more negatively, even if still expecting in-group favoritism (Dejesus, Rhodes, & Kinzler, 2014; Smith et al., 2013), and that among adults, "individualizing" the other tempers group biases (Ensari & Miller, 2002; Slovic, 2007). Speculatively, one might conclude that boys' early tendency to display in-group favoritism gets tamed—perhaps due to culture-specific socialization practices—encouraging them to give more weight to the construal of others as equal individuals.

8.3. Accounting for the gender differences

The findings from the two studies revealed that in at least three different ways, boys were more sensitive to group-regarding preferences than girls. First, in study 1, boys—but not girls—gave more resources to in- than out-group members. Second, in study 1, boys—but not girls—were equally stingy in their distribution of group resources as they were with their own resources. And third, in study 2, boys—but not girls—demonstrated out-group hate by opposing the personal preferences of an out-group recipient.

One possible explanation for these gender differences is that from early on, boys and girls are exposed to socialization practices that differentially endorse individual and group preferences. Consistent with this possibility, a recent review of gender differences in relationship styles found that from 4th grade and through adolescence, girls engage in more interactions that promote connection-oriented goals among individuals, such as social support, intimacy, and mutual participation. Boys, in turn, more frequently engage in competitive and group-like interactions (e.g., sports, ball games), and their peer-relationships promote status goals, such as dominance and revenge (Rose & Rudolph, 2006). Observational studies described in the review intimate the existence of similar markers already among preschoolers. For instance, although dyadic interactions are equally frequent across genders, the duration of such interactions is longer among girls. Furthermore, it is boys who are more likely to enjoy and participate in group activities. Thus clearly, boys and girls engage in different patterns of social interactions, which are consistent with both their peers' and their parents' gendered expectations and messages. Whether such messages can account for the nuanced differential sensitivities of 3–4 year-old boys and girls described above remains an open question.

A second possible explanation is that evolutionary forces, argued to underlie gender differences in adults' social behavior, are already at play in this young age. Specifically, parochialism has been claimed to be a particularly male trait, primarily in the early environments in which cooperation and pooling of resources were key parameters of group fitness (McDonald et al., 2012; Van Vugt et al., 2007). Sensitivity to group membership in these regards might have been advantageous for those directly engaged in generating and protecting such resources, namely males. Moreover, although merely 'not sharing' the group resources is one way to protect group property, the common scenario is one in which groups fight over resources rather than just accept 'ownership' statuses. Consequently, in order to successfully survive through such conflicts, both parochialism and altruism are needed—carried by ones who are willing to pay personal cost in order to benefit or protect their group. In fact, game theoretic analyses have noted that from a strictly individual perspective, both altruism and parochialism have no visible evolutionary benefit (Choi & Bowles, 2007). Their benefits arguably accrue only when analyzed from a group perspective.

In this light, the conservation of group resources and in-group favoritism displayed by boys in study 1, might be seen as manifestations of the male-typical resource-protection strategies described above. Moreover, the fact that in study 2, only boys—and most clearly the younger ones—went from complying to opposing recipients' preferences based on recipients' group membership, further resonates with this evolutionary argument. All this is consistent with the conclusion that parochialism may have been true for the male-warriors, past and present, old and young.

Supplementary materials

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.evolhumbehav.2014.12.002.

Acknowledgments

This research was supported by the Israel Foundation Trustees (Grant no. 30). We are grateful to the Azor local council and all the teachers who welcomed us. We thank Orly Hatina-Chen, Hanit Yaish, Shulie Zimmerman, and Esti Brookman for data collection.

References

Batson, D. C. (2011). *Altruism in humans*. New York, NY: Oxford Univercity Press, Inc.

Baumeister, R. F., & Sommer, K. L. (1997). What do men want? Gender differences and two spheres of belongingness: Comment on Cross and Madson (1997). *Psychological Bulletin*, *122*(1), 38–44.

Benenson, J. F., Pascoe, J., & Radmore, N. (2007). Children's altruistic behavior in the dictator game. *Evolution and Human Behavior*, *28*(3), 168–175.

Blake, P. R., McAuliffe, K., & Warneken, F. (2014). The developmental origins of fairness: The knowledge–behavior gap. *Trends in Cognitive Sciences*, 1–3.

Blake, P. R., & Rand, D. G. (2010). Currency value moderates equity preference among young children. *Evolution and Human Behavior*, *31*(3), 210–218.

Blount, S. (1995). When social outcomes aren't fair: The effect of casual attributions on preferences. *Organizational Behavior and Human Decision Processes*, *63*(2), 131–144.

Bohnet, I., & Frey, B. S. (1999). Social distance and other-regarding behavior in dictator games (comment). *The American Economic Review*, *89*(1), 335–339.

Buttelmann, D., & Bohm, R. (2014). The ontogeny of the motivation that underlies in-group bias. *Psychological Science*, *25*(1), 1–7.

Castelli, I., Massaro, D., Sanfey, A. G., & Marchetti, A. (2010). Fairness and intentionality in children's decision-making. *International Review of Economics*, *57*(3), 269–288.

Chen, Y., & Xin, L. (2009). Group identity and social preferences. *The American Economic Review*, *99*(1), 431–457.

Choi, J. K., & Bowles, S. (2007). The coevolution of parochial altruism and war. *Science*, *318*(5850), 636–640.

De Waal, F. B. M. (2008). Putting the altruism back into altruism: The evolution of empathy. *Annual Review of Psychology*, *59*, 279–300.

Deeb, I., Segall, G., Birnbaum, D., Ben-Eliyahu, A., & Diesendruck, G. (2011). Seeing isn't believing: The effect of intergroup exposure on children's essentialist beliefs about ethnic categories. *Journal of Personality and Social Psychology*, *101*(6), 1139–1156.

Dejesus, J. M., Rhodes, M., & Kinzler, K. D. (2014). Evaluations versus expectations: Children's divergent beliefs about resource distribution. *Cognitive Science*, *38*(1), 178–193.

Dunham, Y., Baron, A. S., & Carey, S. (2011). Consequences of "minimal" group affiliations in children. *Child Development*, *82*(3), 793–811.

Engel, C. (2011). Dictator games: A meta study. *Experimental Economics*, *14*(4), 583–610.

Engelmann, J. M., Over, H., Herrmann, E., & Tomasello, M. (2013). Young children care more about their reputation with ingroup members and potential reciprocators. *Developmental Science*, *16*(6), 952–958.

Ensari, N., & Miller, N. (2002). The out-group must not be so bad after all: The effects of disclosure, typicality, and salience on intergroup bias. *Journal of Personality and Social Psychology*, *83*(2), 313–329.

Falk, A., Fehr, E., & Fischbacher, U. (2008). Testing theories of fairness—Intentions matter. *Games and Economic Behavior*, *62*(1), 287–303.

Fehr, E., Bernhard, H., & Rockenbach, B. (2008). Egalitarianism in young children. *Nature*, *454*(7208), 1079–1083.

Fehr, E., & Fischbacher, U. (2003). The nature of human altruism. *Nature*, *425*(6960), 785–791.

Fehr, E., Glätzle-Rützler, D., & Sutter, M. (2013). The development of egalitarianism, altruism, spite and parochialism in childhood and adolescence. *European Economic Review*, *64*, 369–383.

Fehr, E., & Schmidt, K. M. (2006). The economics of fairness, reciprocity and altruism—Experimental evidence and new theories. *Handbook of the economics of giving, altruism and reciprocity*, *1*. (pp. 615–691).

Geary, D., Byrd-Craven, J., Hoard, M. K., Vigil, J., & Numtee, C. (2003). Evolution and development of boys' social behavior. *Developmental Review*, *23*(4), 444–470.

Geraci, A., & Surian, L. (2011). The developmental roots of fairness: Infants' reactions to equal and unequal distributions of resources. *Developmental Science*, *14*(5), 1012–1020.

Gintis, H., Bowles, S., Boyd, R., & Fehr, E. (2003). Explaining altruistic behavior in humans. *Evolution and Human Behavior*, *24*(3), 153–172.

Graham, J., & Haidt, J. (2012). Sacred values and evil adversaries: A Moral Foundations approach. In M. Mikulincer, & P. Shaver (Eds.), *The social psychology of morality: Exploring the causes of good and evil* (pp. 11–31). Washington, DC, US: APA Books.

Graham, J., Haidt, J., Koleva, S., Motyl, M., Iyer, R., Wojcik, S., et al. (2013). Moral foundations theory: The pragmatic validity of moral pluralism. *Advances in Experimental Social Psychology*, *47*, 55–130.

Gray, K., Young, L., & Waytz, A. (2012). Mind perception is the essence of morality. *Psychological Inquiry*, *23*(2), 101–124.

Greene, J. (2014). *Moral tribes: emotion, reason and the gap between us and them*. Atlantic Books Ltd.

Hamann, K., Warneken, F., Greenberg, J. R., & Tomasello, M. (2011). Collaboration encourages equal sharing in children but not in chimpanzees. *Nature*, *476*(7360), 328–331.

Hoffman, E., McCabe, K., Shachat, K., & Smith, V. (1994). Preferences, property rights and anonymity in bargaining games. *Games and Economic Behavior*, *7*(3), 346–380.

House, B., Henrich, J., Sarnecka, B., & Silk, J. B. (2013). The development of contingent reciprocity in children. *Evolution and Human Behavior*, *34*(2), 86–93.

Janoff-Bulman, R., & Carnes, N. C. (2013). Surveying the moral landscape: Moral motives and group-based moralities. *Personality and Social Psychology Review*, *17*(3), 219–236.

Kanngiesser, P., & Warneken, F. (2012). Young children consider merit when sharing resources with others. *PLoS One*, *7*(8), e43979, http://dx.doi.org/10.1371/journal.pone.0043979.

Killen, M., & Smetana, J. (2008). Moral judgment and moral neuroscience: Intersections, definitions, and issues. *Child Development Perspectives*, *2*(1), 1–6.

McDonald, M. M., Navarrete, C. D., & Van Vugt, M. (2012). Evolution and the psychology of intergroup conflict: The male warrior hypothesis. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, *367*(1589), 670–679.

Moore, C. (2009). Fairness in children's resource allocation depends on the recipient. *Psychological Science*, *20*(8), 944–948.

Nancekivell, S. E., Van de Vondervoort, J. W., & Friedman, O. (2013). Young children's understanding of ownership. *Child Development Perspectives*, *7*(4), 243–247.

Navarrete, C. D., McDonald, M. M., Molina, L. E., & Sidanius, J. (2010). Prejudice at the nexus of race and gender: An outgroup male target hypothesis. *Journal of Personality and Social Psychology*, *98*(6), 933–945.

Olson, K. R., & Spelke, E. S. (2008). Foundations of cooperation in young children. *Cognition*, *108*(1), 222–231.

Price, M. E., Cosmides, L., & Tooby, J. (2002). Punitive sentiment as an anti-free rider psychological device. *Evolution and Human Behavior*, *23*(3), 203–231.

Repacholi, B. M., & Gopnik, A. (1997). Early reasoning about desires: Evidence from 14- and 18-month-olds. *Developmental Psychology*, *33*(1), 12–21.

Rochat, P., Dias, M. D. G., Broesch, T., Passos-Ferreira, C., Winning, A., & Berg, B. (2009). Fairness in distributive Justice by 3- and 5-year-olds across seven cultures. *Journal of Cross-Cultural Psychology*, *40*(3), 416–442.

Rose, A. J., & Rudolph, K. D. (2006). A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin*, *132*(1), 98–131.

Rutland, A., Killen, M., & Abrams, D. (2010). A new social-cognitive developmental perspective on prejudice: The interplay between morality and group identity. *Perspectives on Psychological Science*, *5*(3), 279–291.

Schmidt, M. F. H., & Sommerville, J. A. (2011). Fairness expectations and altruistic sharing in 15-month-old human infants. *PLoS One*, *6*(10), e23223, http://dx.doi.org/10.1371/journal.pone.0023223.

Shaw, A., DeScioli, P., & Olson, K. R. (2012). Fairness versus favoritism in children. *Evolution and Human Behavior*, *33*(6), 736–745.

Shaw, A., Montinari, N., Piovesan, M., Olson, K. R., Gino, F., & Norton, M. I. (2014). Children develop a veil of fairness. *Journal of Experimental Psychology: General*, *143*(1), 363–375.

Sheskin, M., Bloom, P., & Wynn, K. (2014). Anti-equality: Social comparison in young children. *Cognition*, *130*(2), 152–156.

Shweder, R. A. (2012). Relativism and Universalism. In D. Fassin (Ed.), *A companion to moral anthropology* (pp. 85–102). John Wiley & Sons.

Shweder, R. A., Much, N. C., Mahapatra, M., & Lawrence, P. (1997). The "big three" of morality (autonomy, community, divinity) and the "big three" explanations of suffering. In A. Brandt, & P. Rozin (Eds.), *Morality and health* (pp. 119–173). New-York: Routledge.

Sloane, S. M., Baillargeon, R., & Premack, D. (2012). Do infants have a sense of fairness? *Psychological Science*, *23*(2), 196–204.

Slovic, P. (2007). "If I look at the mass I will never act": Psychic numbing and genocide. *Judgment and Decision Making*, *2*(2), 79–95.

Smith, C. E., Blake, P. R., & Harris, P. L. (2013). I should but I won't: Why young children endorse norms of fair sharing but do not follow them. *PLoS One*, *8*(3), e59510, http://dx.doi.org/10.1371/journal.pone.0059510.

Snarey, J. R. (1985). Cross-cultural universality of social–moral development: A critical review of Kohlbergian research. *Psychological Bulletin*, *97*(2), 202–232.

Tomasello, M., & Vaish, A. (2013). Origins of human cooperation and morality. *Annual Review of Psychology*, *64*, 231–255.

Tooby, J., & Cosmides, L. (1988). The evolution of war and its cognitive foundations. *Institute for Evolutionary Studies Technical Report*, *88*(1), 1–15.

Turiel, E., Hildebrandt, C., Wainryb, C., & Saltzstein, H. D. (1991). Judging social issues: Difficulties, inconsistencies, and consistencies. *Monographs of the Society for Research in Child Development*, *56*(2), 1–103.

Van Vugt, M., De Cremer, D., & Janssen, D. P. (2007). Gender differences in cooperation and competition: The male-warrior hypothesis. *Psychological Science*, *18*(1), 19–23.

Warneken, F., & Tomasello, M. (2009). The roots of human altruism. *British Journal of Psychology*, *100*(3), 455–471.