Children's Group Identity is Related to their Assessment of Fair and Unfair Advantages

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Group Identity and Attributions of Intentions are Related to Assessments of Fair and Unfair Advantages

How children think about fairness is a robust area of research in developmental science. This topic has recently become an area of significant attention, with findings revealing that an understanding of fairness and equality is observable in early to middle childhood (Elenbaas, 2019; Paulus & Moore, 2014; Robbins et al., 2016; Schmidt & Sommerville, 2011). Throughout development, however, individuals must coordinate concerns for fairness with concerns for factors such as personal benefit (Blake et al., 2014; Smith et al., 2013), costs to equality (Williams & Moore, 2014), in-group preference (Baron & Dunham, 2015; McAuliffe & Dunham, 2017), and group identity (McGuire et al., 2018; McGuire & Rutland, 2020). These findings suggest that despite an early understanding of fairness principles, children's implementation of these principles is not always well coordinated with other concerns, thus warranting further research.

While children show an early understanding of the importance of fairness (Paulus & Moore, 2014; Shaw & Olson, 2012), children also recognize that a fair division does not always require strict equality (Rizzo & Killen, 2016). When one individual works harder than another, children will deviate from an even distribution of rewards and will endorse distributions that reward the meritorious individual (Baumard et al., 2012; Noh et al., 2019). This suggests that children recognize that inequalities are not inherently unfair and that an advantage may be acceptable in certain contexts, such as those that follow an increased effort on the part of one party relative to another.

Children's Understanding of Intentions

The role of intentionality in children's moral judgment has been extensively documented (Cushman et al., 2013; Killen et al., 2011). While children recognize that some inequalities are fair and others are unfair, it is also important to determine whether children distinguish between different *types* of unfair inequalities, and specifically to consider how these unfair inequalities are created. Unfair advantages can be created either intentionally (e.g., cheating) or unintentionally (e.g., unintended benefit). Previous research on intention understanding has shown that children differentiate between acts that are the result of negligence or clear intent (Nobes et al., 2009) and that children who are able to accurately identify the intentions of accidental transgressors are less critical in their evaluation of the accidental transgressor's behavior (Killen et al., 2011). Additionally, children who fail to recognize the intentions of accidental transgressors rate their behavior as just as unacceptable as fully intentional harm, while those who recognize the distinction view the accidental harm more positively (D'Esterre et al., 2019).

It is also worth considering the types of assessments administered when children are asked to evaluate the fairness of different types of actions. When harm is created unintentionally, for example, children can be asked to provide a moral evaluation of the situation (Was what they did okay or not okay?) or they can be asked to evaluate the intentions of the advantage creator (Did they think they were doing something okay or not okay?). In a study in which children were asked about an accidental transgressor (Killen et al., 2011), 7.5-year-old children *evaluated* the behavior of an unintentional transgressor negatively while they *attributed intentions* that were positive, but 3.5-year-old children provided more negative responses for both the evaluation and attribution of intentions. Thus, to provide a deeper understanding of children's moral judgments

of a situation, it is beneficial to investigate how children evaluate an action *as well as* how children attribute intentions regarding the same action.

Group Identity

As stated above, while children develop a fairly complex understanding of fairness from early to middle childhood, they often display difficulties coordinating concerns for fairness with other social factors. One social factor of particular interest to the current study is a child's group identity and how their viewpoint as members of an in-group or an out-group bear on their evaluations and attributions of intentions of others. For example, in socially complex situations, children often reveal in-group biases when allocating resources (Sparks et al., 2017). Research with children and adolescents has shown that the saliency of these identities differs when groups are cooperating or competing, with competitive pressure leading individuals to pay more attention to peer group norms and to put more emphasis on the rules of the competition (McGuire et al., 2018).

In everyday contexts, children are often required to balance multiple considerations in their moral judgments, including group knowledge and group loyalty as well as attributions of others' intentions. Drawing on social identity theory (Nesdale, 2008; McGuire & Rutland, 2020; Tajfel & Turner, 1979) to examine group identity as a factor in decision making, and social domain theory (Smetana, et al., 2014; Turiel, 2002), the social reasoning developmental (SRD) model (Killen & Rutland, 2011), explores decision-making that involves the coordination of moral considerations and group dynamics. The types of considerations studied focus mostly on moral (fairness), psychological (mental state knowledge) and group-focused (group identity) reasoning in intergroup contexts (McGuire, et al., 2018).

In situations involving concerns about fairness and group identity, for example, SRD predicts that a lack of mental state knowledge can result in an erroneous moral attribution – particularly when group identity is salient. This was shown in study by Rizzo and Killen (2018) in which children without mental state knowledge were less likely to reward based on merit when a target was a member of a gender outgroup than an ingroup. SRD also predicts that children's group-based decisions require an ability to understand others' beliefs and intentions, and that the ability to incorporate this information can have profound impacts on children's fairness judgments (D'Esterre et al., 2019; Killen et al., 2011; Strid & Meristo, 2020).

In a context involving competition children are often tasked with reasoning about and coordinating multiple concerns – such as those about fairness within the competition, loyalty to their team, and the intentions of team members and opponents. While not motivated by the SRD, convergent evidence for the importance of this relationship can be found in a study by Rhodes and Brickman (2011) with five and six-year-old children. Children were presented with two fictional groups (e.g., Flurps and Zazes) and were told that both groups were interested in water from a well. It was found that the competitive context led children to focus more heavily on group-based concerns than moral judgments and to view category membership as more directly linked to the character's identity. This suggests that, in a competitive context, children may reason differently about the behavior of other individuals based on whether they are a member of their team or the opponent's team. Due to the ability of a competitive context to strengthen the emphasis on group identity, the current study aimed to investigate the role of participant age and group identity on children's understanding of fair and unfair advantages within a competitive context. What hasn't been studied however, is whether children are more likely to negatively evaluate, or attribute negative intentions to an out-group member than in in-group member when

that individual creates an advantage for one group. Further, it has yet to be determined if the manner in which this advantage was created changes the way children reason about these in-group and out-group members?

By bringing a potential transgression, or "cheating," into this type of competitive process an additional element is added where children must interpret the intentions of the transgressor when assessing their behavior. SRD predicts that in such a context children may view a referee's call of "foul" to be wrong when it is in reference to an in-group member's actions but legitimate when the call of "foul" is about the out-group member's actions. This may be due, at least in part, to the fact that a potential cheating transgression made by an in-group member is likely to benefit the child's own team while one committed by an out-group member likely hurts their team's chances. Further, the SRD model predicts that children's responses to such a scenario will be a product of their ability to incorporate this combination of moral, group, and intentional information and that children's ability to successfully reason about these multiple factors and integrate this information will improve with age.

No research to date, however, has systematically investigated the developmental trajectory of children's responses to these types of multi-faceted contexts involving groups, intentions, and fairness. Nor has work been conducted to determine how children's reasoning about these types of scenarios change over the course of early to middle childhood and the extent to which children focus on fairness, attributions of others' intentions, and group-based rationales when making their judgments. The present study was designed to provide insight into the way children respond to these types of complex scenarios that are prevalent in children's everyday life.

The Current Study

The present study was designed to investigate how children ages 4 - 10 years perceive fair and unfair advantages in competitive contexts that vary by the intentionality of the advantage creator, and whether the group identity of the advantage creator was a factor in how children evaluated the advantage. Thus, a central goal was to investigate the role of group identity on children's evaluation of advantages for a team when those advantages were created unfairly but unintentionally, unfairly and intentionally, and fairly. Each type of advantage varied by the intentionality (unintentional or intentional) and the fairness (unfair or fair).

The age group for this study was selected for several reasons. First, fairness is a great concern of children during early childhood (Smetana, et al., 2014), indicating that the children care about the decision making that results in a fair or unfair outcome. Second, children's understanding of intentionality (and mental state knowledge) changes during this age period (Lagatutta & Weller, 2014; Rizzo, et al., 2018) suggesting that younger children would be less likely to differentiate intentional and unintentional advantages than older children from 4 – 10 years of age. Third, group identity has been shown to be very salient to children during this age period (Nesdale, 2008; Abrams & Rutland, 2008). While ingroup biases have been shown to be very salient in childhood, little developmental variance has been reported for the presence of ingroup bias (Baron, 2015; Dunham, et al., 2011). Further, group identity is related to children's evaluations of fairness (McGuire & Rutland, 2020).

Thus, in the present study, age-related changes were focused on the attributions of intentions based on past research, with an expectation that group identity would be related to an interpretation of an advantage creators' intentions. What has not been investigated, to date, is whether group identity is related to children's evaluations of advantages in competitive contexts and whether children's attributions of an advantage creators' intentions change with age. For

each situation, children were asked to *evaluate* the permissibility of the advantage creator's actions, to provide their reasoning for their evaluation, and to assess whether the team member had positive or negative *intentions.* Children were also assigned to one of two conditions where they responded to advantages created by members of their group ("in-group condition") or members of the other group ("out-group condition"). Based on the theoretical and research literature we made the following predictions.

Hypotheses Regarding Advantage Context and Age

Within Advantage Contexts. We predicted age related increases for both the *evaluation* and *attribution of intentions* measures in the unintentional unfair advantage (H1a), based on previous work showing age-related increases in children's understanding of accidental transgressions (Helwig et al., 1995; Zelazo et al., 1996). It was also predicted that we would observe age related increases for both measures in the fair advantage context (H1b), due to previous research showing older children's willingness to deviate from equality for a meritorious individual (Noh et al., 2019). Given previous research showing that straightforward moral transgressions tend to be viewed as wrong regardless of age (Jambon & Smetana, 2013), no differences were expected between younger and older children for the intentional unfair advantage context due to the scenario being a straightforward moral transgression.

Across Advantage Contexts. We predicted that older children would *evaluate* the behavior, and *attribute intentions,* more positively in the unintentional unfair advantage than the intentional unfair advantage; whereas younger children would not make this distinction (H2a). It was also expected that both younger and older children would respond more positively to the fair advantage on the *evaluation* and *attribution of intentions* measures than they would for either the

unintentional unfair or intentional unfair advantage contexts (H2b), as the fair advantage context did not involve a rule violation.

Reasoning by Age. We predicted that younger children would reason primarily about the impact of the advantage on their *groups* (e.g., "Because my team is going to lose") while the older children will be more concerned with *mental states* (e.g. "They didn't mean to break the rules") and *fairness* (e.g. "It's not fair to feed their pumpkins twice if the rule is to only feed them once") (H3).

Hypotheses Regarding Advantage Context and Group Identity

Within Advantage Contexts. We predicted that participants reasoning about an in-group member would be more positive than participants reasoning about an out-group member for both the *evaluation* and *attribution of intentions* measure in the unintentional unfair advantage (H4a) and fair advantage contexts (H4b). Once again, no differences were expected between the in-group and out-group conditions for the intentional unfair advantage context due to children's consistently negative ratings for straightforward moral transgressions (Jambon & Smetana, 2013).

Across Advantage Contexts. In contrast to our previous hypotheses, we expected different patterns for the *evaluation* and *attribution of intentions* measures when looking at children's responses across the various advantage contexts. For the *evaluation* measure we predicted that participants in the in-group condition would evaluate the fair advantage more positively than the unintentional unfair or the intentional unfair advantage contexts, and that participants in the in-group condition would also evaluate the unintentional unfair advantage context more positively than the intentional unfair advantage (H5a). However, for the *attribution of intentions* measure we expected that participants in the in-group condition would respond

equally positively for the fair advantage and unintentional unfair advantage contexts, and that both of these advantage contexts would be rated more positively than the intentional unfair advantage contexts (H5b). Participants reasoning about an out-group member were expected to show a more consistent pattern for their *evaluation* and *attribution of intentions* measures and were predicted to give higher ratings for the fair advantage context than either the unintentional unfair or intentional unfair advantage contexts, but they were not expected to differ in their ratings of unintentional and intentional unfair advantages (H5c).

Methods

Participants

A significant body of research investigating children's understanding of groups and/or intentions have focused on children spanning the early to middle childhood years (D'Esterre et al., 2019; Helwig et al., 1995; Rizzo & Killen, 2019). Therefore, participants included 120 children between 4 and 10 years of age (M_{Age} = 6.87 years, SD_{Age} = 1.81; 53% female) recruited from preschools and summer camps. The sample was divided into two age groups, a younger (4- to 6-years, n = 59, M = 5.29, SD = .85) and older (7- to 10-years, n = 61, M = 8.34, SD = 1.0). Sample size was determined using a priori power analyses using G*Power (Faul et al., 2009), which revealed that in order to detect small to medium effects, consistent with previous research on this topic (e.g., Bernhard et al., 2020; McGuire et al., 2018), a minimum of approximately 100 participants would be necessary to test our hypotheses. Participants were ethnically diverse (67% European American, 18% African American, 11% Asian American, and 4% Hispanic) and were recruited from preschools serving lower-middle to upper-middle income families in the Mid-Atlantic region of the United States. This sample was divided into two age groups for conducting

analyses that would be informative for comparisons to the literature that postulate age related changes for these age groupings. Data were collected in 2019-2020.

Design

To measure evaluations of potential cheating and attributions of intentions in a group identity context, three types of advantage situations were created: an unintentional unfair advantage (accidental rule violation), an intentional unfair advantage (cheating), and a fair advantage (working harder); see Table 1. The context was a pumpkin-growing contest between two teams. There was one rule stated, which was that the pumpkins could only be fed one cup of plant food per day. This context was selected as it allowed for a competitive context which was free from gender biases, and due to the regional traditions in the data collection location where many families and schools attended annual pumpkin festivals and learn about how pumpkins grow.

For each of these three vignettes the blue team gained an advantage over the red team, and in each of these three contexts the advantage was created in a different manner. Prior to hearing these scenarios children were randomly assigned to membership on either the blue team or the red team, and as a result, half of participants responded to the actions of in-group members while half responded to advantages created by an out-group member. Thus, a mixed-factorial design was utilized with the group affiliation and age as between-subject manipulations and advantage type as a within-subject manipulation: 2 (group affiliation: ingroup, outgroup) x 2 (age: 4- to 6-years-old, 7- to 10-years-old) with 3 (advantage type: unintentional unfair advantage, intentional unfair advantage, or fair advantage).

Procedure

This project was approved by the Institutional Review Board at [institution masked]. All

Table 1

Three Types of Advantages in Competitive Contexts

Types of Advantage	Act Description and Example
Unintentional Unfair Advantage (UUA)	**Act:** A member of one's own team or the other team accidentally violates a contest rule **Example:** Feeding the pumpkins more than the allotted 1 cup of plant food, *not knowing* that they have already been fed
Intentional Unfair Advantage (IUA)	**Act:** A member of one's own team or the other team intentionally violates a contest rule **Example:** Feeding the pumpkins more than the allotted 1 cup of plant food *knowing* that they have already been fed
Fair Advantage (FA)	**Act:** A member of one's own team or the other team follows the rules of the contest, putting in more effort than their competitor **Example:** Feeding the pumpkins the allotted 1 cup of plant food when the competitors decide to play at the park instead

Note. Using a within-subjects design, all participants ($N = 120$) were inducted into the ingroup or the outgroup (with group identity as a between-subjects factor) and evaluated each type of advantage.

participants received written parental consent to participate and gave verbal assent prior to study administration. Trained research assistants individually administered the task to all participants. Interviews were conducted in a quiet space in participants' schools and lasted approximately 15-20 minutes. The research assistants read the children stories from a script which was presented using a brightly illustrated PowerPoint presentation on a laptop computer. Participants were read three stories about an unintentional rule violation, an intentional rule violation, and a fair advantage, respectively.

Previous research has shown that presenting an intentional transgression before an unintentional transgression negatively primes participants to view the second transgression as acceptable (D'Esterre et al., 2019), and as a result the unintentional unfair advantage was always presented first, followed by the intentional unfair advantage, and lastly the fair advantage context. Participants were introduced to a 6-point Likert-type scale and trained on its use. Researchers used a printed protocol to record all responses, and all sessions were audiotaped. Once children demonstrated comprehension of the scale and were able to reliably use the midpoints and both endpoints, the researcher began the first story.

Group Affiliation

Before hearing about the advantage contexts, children were randomly assigned to either the in-group advantaged or out-group advantaged condition. This team assignment process served as the condition manipulation in which children assigned to the in-group advantaged condition (blue team) heard stories in which the fair and unfair advantages helped their team, while those assigned to the out-group advantaged condition (red team) heard stories in which their team was always disadvantaged. In order to induct children into the group identity of the team, a procedure established by Nesdale et al. (2004) was followed whereby children were allowed to (1) pick a star or lightning bolt icon for their team logo; (2) asked to hold a small, colorful, laminated picture of the logo for the duration of the interview; and (3) asked to select a reward for their team if their team won the contest, which took the form of either an ice cream or pizza party.

All children were presented with images of the characters on their own team and the other team. On the participant's own team, a gender-matched silhouette character entitled "you" represented them. Each participant saw their silhouette standing with other characters wearing

shirts that corresponded to their team color, and all characters were portrayed as approximately the participant's own age and represented an ethnically varied team composition (see Figure 1). In between each story, children were shown a "filler task" which included separate PowerPoint slides with pictures of three fun activities (painting, bicycle, music) and asked how much they liked X (e.g., "How much do you like painting pictures?" with a cartoon image of an easel and paints).

Advantage Contexts

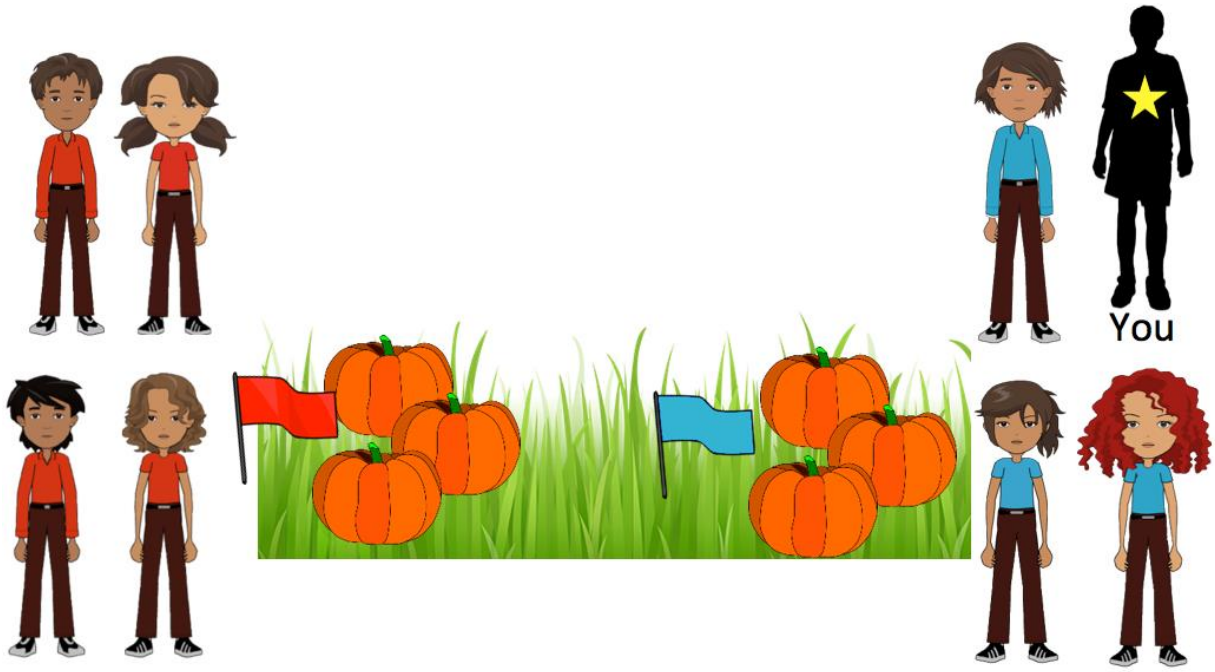
Participants were provided with three conceptually distinct forms of advantages: an unintentional unfair advantage, an intentional unfair advantage, and a fair advantage (see Table 1). In the unintentional unfair advantage context the intentions of the advantage creator were positive but the outcome was negative, given that an unfair advantage was created. The intentional unfair advantage was similar to a straightforward moral transgression whereby a team member intentionally cheated so that their team could win. Including both the unintentional and intentional unfair advantage allowed for a comparison in children's responses to two scenarios where an equally negative outcome occurred, but with very different intentions. In contrast, the fair advantage was included as it allowed for the assessment of advantages without an associated transgression. No research to date has systematically examined how these different forms of advantages are evaluated or how the intentions of those advantage creators are viewed differently as a function of children's age and their group affiliation.

Unintentional Unfair Advantage

At the beginning of each story, children were informed that the red and blue teams were competing in a pumpkin growing contest and that the rule for this contest was that each team could only give their pumpkins "one cup of plant food" each day. In the story about the

Figure 1

PowerPoint slide depicting the team setup for the competition when a male participant was assigned to the Blue team (referred to as "ingroup").



Note. The silhouette was on the left side when the participant was assigned to the Red team.

unintentional transgressor, children were introduced to a blue team character named Sam and reminded of the "one cup of plant food" rule. Children were told that it was Sam's turn to feed the pumpkins, but he could not find the plant food, so he left to look for it. While Sam was away, his teammates found some plant food, both teams fed their pumpkins, and then everyone left. After everyone had left Sam returned with the plant food that he had found and he proceeded to feed his team's pumpkins. Children were then informed that the blue team grew the biggest pumpkin and won the contest. At this point, children were given a memory check question: "Is Sam on your team or is Sam on the other team?" Children who incorrectly responded had the manipulation repeated to them two or fewer times, and all children successfully passed this memory check.

Intentional Unfair Advantage

In the story about the intentional transgressor, children were introduced to Taylor, a blue team member, and were reminded of the "one cup of plant food" rule. Participants were told that it was Taylor's turn to feed the pumpkins, but she could not find the plant food. They were informed that after she looked around, she found the plant food and both Taylor and the red team fed their pumpkins. Then, after everyone left, Taylor came back with plant food for her team's pumpkins and fed the pumpkins again. Children were explicitly told that Taylor remembered that she fed the pumpkins earlier. Children were then explained that the blue team grew the biggest pumpkin and won the contest. At this point a memory check was asked: "Is Taylor on your team or is Taylor on the other team?" Children who answered correctly proceeded to the next questions, whereas children who answered incorrectly had the manipulation repeated to them two or fewer times, and once again all children successfully passed this memory check.

Fair Advantage

The final story introduced the children to Casey, a member of the blue team. Participants were once again reminded of the "one cup of plant food" rule and told that it was Casey's turn to feed the pumpkins. Participants were informed that it was a very nice day outside and that the other team decided to go to the park instead of feeding their pumpkins, but Casey decided to stay and feed her team's pumpkins instead. Children were told that the blue team grew the biggest pumpkin and won the contest. Once again, a memory check was administered: "Is Casey on your team or is Casey on the other team?" Children who answered correctly proceeded to the next questions, whereas children who answered incorrectly had the manipulation repeated to them two or fewer times. All children successfully passed this memory check.

Measures

After finishing each story, children were asked to *evaluate* the actions of the advantage-creating character and to make an *attribution of intentions* regarding the motivation of the character. These measures were selected as they provide insight into children's understanding of intentions as well as their assessment of the outcome of behaviors.

Evaluation and Reasoning

For the first evaluation assessment, participants were asked "Do *you* think it was OK or not OK for [Sam/Taylor/Casey] to feed the pumpkins? How OK/not OK?" Participants responded on a 6-point Likert-type scale ranging from 1 (*really not OK)* to 6 (*really OK).* Following children's response to the Likert-type scale children were prompted to provide their reasoning behind their answer by asking them, "So you said [child's answer to evaluation question]. Why do you think it is [child's answer to evaluation question]?" A coding system based on previous research from the social reasoning developmental model (Mulvey et al., 2016) was utilized in which children's responses were entered as being in reference to Mental States: Lack of access to knowledge ("They didn't know the pumpkins were already fed"), Morality: Fairness and Cheating ("Cheating is not fair"), or Group Benefit: Group affiliation and gain ("It's okay because my team won"). Reasoning that was missing or uncodeable was not utilized in analyses. Children's responses were coded for both primary and secondary reasoning categories but given the low use of multiple categories (8%) children's responses were coded based on the presence or absence of the categories and were entered as 1 = use of category or 0 = no use. Two unique coders were trained on these coding categories and achieved an interrater reliability of Cohen's $\kappa = .82$.

Attribution of Intentions (AoI)

The child's attribution of intentions was assessed with the question: "Okay, so *you* think that it's [child's previous rating], but what about [Sam/Casey/Taylor]? Does [Sam/Casey/Taylor] think he/she was doing something OK or not OK when he/she fed the pumpkins? How OK/not OK?" Participants responded on a 6-point Likert-type scale ranging from 1 (*really not OK)* to 6 (*really OK).*

Data analytic plan

In order to explore both the within and between-subject manipulations, a pair of 3 (advantage type) x 2 (group identity) x 2 (age) repeated measures ANOVAs were utilized. Participants' responses to the social cognition item (*Evaluation* or *Attribution of Intentions*) for each of the three advantage contexts were entered as the within-subject variable, while group affiliation and age were entered as between-subject factors. Planned post-hoc analyses utilizing Bonferroni adjustments were conducted to investigate interactions between the advantage contexts, children's age, and their team membership. Additionally, chi-squared analyses were utilized for analyses regarding children's use of the three reasoning categories. Differences based on participant gender were not expected, and independent samples t-tests confirmed that the gender of participants did not predict their response to either outcome measure for any advantage context (all $p > .05$). However, to ensure that gender effects could not explain any observed findings gender was entered as a covariate in all analyses.

First, main effects and significant interactions of advantage context, participant age, and group identity will be discussed quickly, as they provide a proof of the manipulations utilized in the present study. This will be followed by a more detailed focus on planned post-hoc tests investigating the interaction between the presented advantage contexts and children's age.

Lastly, results pertaining to post-hoc tests of the interactions between the advantage contexts and children's assigned group membership will be reported.

Results

Manipulation Checks

Advantage Context. The results of our analyses revealed a significant main effect of advantage type for both the evaluation and attribution of intentions measures (*evaluation:* $F(1,115) = 93.36$, $p < .001$, $\eta^2 = .448$; *attribution of intentions:* $F(1,115) = 24.48$, $p < .001$, $\eta^2 = .175$). Post-hoc analyses of these differences showed that, on average, children viewed the fair advantage most favorably (*evaluation*: $M = 4.81$, $SE = .147$; *attribution of intentions*: $M = 4.88$, $SE = .141$), followed by the unintentional unfair advantage (*evaluation*: $M = 2.95$, $SE = .163$; *attribution of intentions*: $M = 4.35$, $SE = .153$), and rated the intentional unfair advantage least favorably (*evaluation*: $M = 2.41$, $SE = .156$; *attribution of intentions*: $M = 3.98$, $SE = .150$). This main effect indicated that the intentionality manipulation was interpreted as intended.

Participant Age. Main effects of participant age were not found for either the evaluation ($F(1,115) = .071$, $p = .790$, $\eta^2 = .001$; older: $M = 3.36$, $SE = .157$; younger: $M = 3.42$, $SE = .161$) or the attribution of intentions measures ($F(1,115) = 7.12$, $p = .200$, $\eta^2 = .014$; older: $M = 4.54$, $SE = .153$; younger: $M = 4.26$, $SE = .156$). The lack of significant main effects were qualified by the significant interactions between advantage contexts and age for both measures (*evaluation:* $F(1,115) = 36.05$, $p < .001$, $\eta^2 = .236$; *attribution of intentions:* $F(1,115) = 11.02$, $p = .001$, $\eta^2 = .086$), which was hypothesized for both outcome measures (H1 & H2) and will be discussed in more detail below.

Group Identity. The group identity manipulation revealed a significant main effects for both the evaluation ($F(1,115) = 12.835$, $p < .001$, $\eta^2 = .100$; Out-Group: $M = 2.99$, $SE = .156$; In-

Group: $M = 3.79$, $SE = .162$) and the attribution of intentions measure ($F(1,115) = 6.67$, $p = .011$, $\eta^2 = .055$; Out-Group: $M = 4.12$, $SE = .152$; In-Group: $M = 4.68$, $SE = .157$). On average, participants assigned to the in-group condition evaluated the advantages more positively and assigned more positive intentions to the advantage creator. These findings indicated that the group identity manipulation worked as intended.

Additionally, a significant interaction between advantage context and assigned group membership was found for the evaluation measure ($F(1,115) = 5.21$, $p = .024$, $\eta^2 = .043$), but did not quite reach significance for the attribution of intentions measure ($F(1,115) = 3.86$, $p = .052$, $\eta^2 = .032$). However, given our hypotheses that participants would react differently to these stories as a function of their group identity (H4 & H5), we conducted our planned post-hoc analyses on this interaction in order to better understand this relationship.

While hypotheses were not originally formulated for the interaction between participant age and group identity or for the three-way advantage context X participant age X group identity interaction these were included in the models run. The interaction of participant age and group identity did not reach significance for either the evaluation measure ($F(1, 115) = .968$, $p = .327$, $\eta^2 = .008$) or the attribution of intentions ($F(1, 115) = .072$, $p = .789$, $\eta^2 = .001$). Likewise, the advantage context X participant age X group identity three-way interaction did not reach significance for the evaluation ($F(1, 115) = .007$, $p = .931$, $\eta^2 < .001$) or the attribution of intentions measure ($F(1, 115) = .005$, $p = .942$, $\eta^2 < .001$). As these interactions were not central to our hypotheses they will not be discussed further in this manuscript, and tables regarding these values have been listed in Supplemental Materials.

Results Regarding Advantage Context and Age

Given the significant interaction between advantage context and age for both outcome measures, planned post-hoc analyses were conducted utilizing the estimated marginal means generated from the full omnibus model. This approach allowed for comparisons between younger and older participants while adjusting for the other variables included in the model, while also accounting for the multiple comparisons inherent in our hypotheses and utilizing Bonferroni adjustments to reduce the possibility of Type 1 errors.

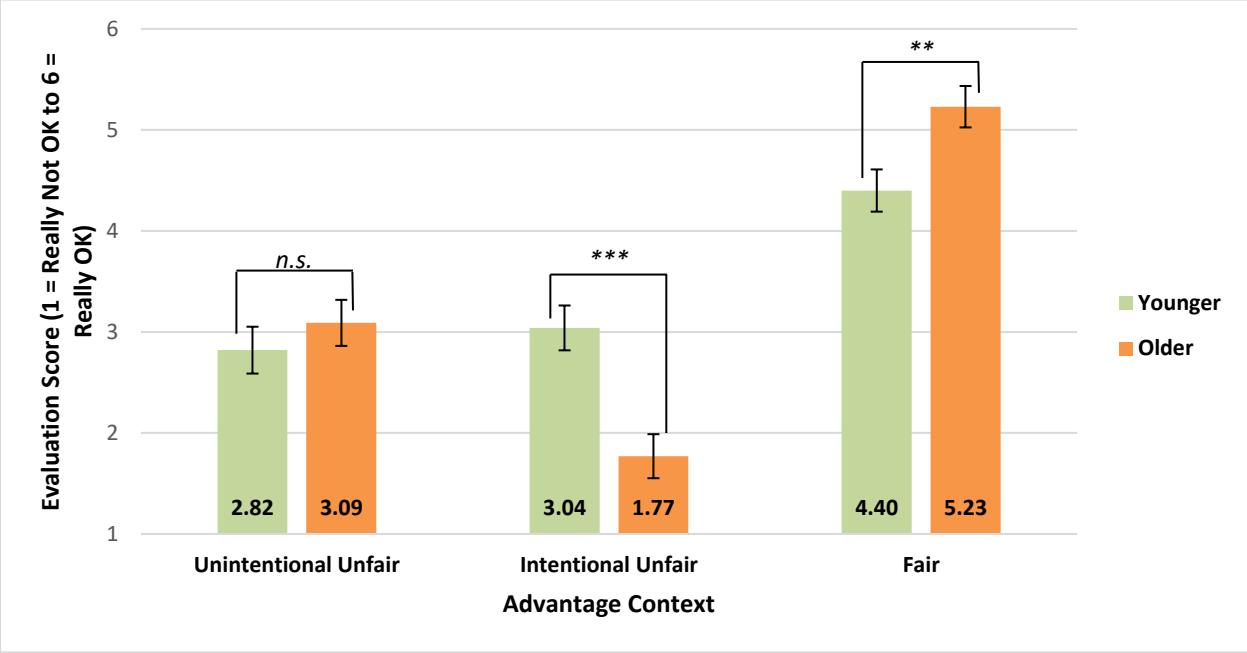
***Within Advantage Contexts*.** To test our predictions that, with age, children would provide more positive responses on their *evaluation* and *attribution of intentions* measures in the unintentional unfair advantage (H1a), we conducted one-way ANOVAs. These analyses revealed that older participants (seven- to ten-years-old) were not significantly more positive than younger children (four- to six-years-old) in their *evaluation* of the unintentional unfair advantage ($F(1, 115) = .665$, $p = .416$, $\eta^2 = .006$; older: $M = 3.09$, $SE = .228$; younger: $M = 2.82$, $SE = .232$) (Figure 2), nor in their *attribution of intentions* ($F(1, 115) = .186$, $p = .667$, $\eta^2 = .002$; older: $M = 4.41$, $SE = .214$; younger: $M = 4.28$, $SE = .218$) (Figure 3), and thus did not support our hypothesis (H1a).

As hypothesized, however, older children were significantly more positive than were younger children for their *evaluation* of the fair advantage ($F(1, 115) = 7.94$, $p = .006$, $\eta^2 = .065$; older: $M = 5.23$, $SE = .205$; younger: $M = 4.40$, $SE = .209$) and their *attribution of intentions* ($F(1, 115) = 10.973$, $p = .001$, $\eta^2 = .087$; older: $M = 5.35$, $SE = .197$; younger: $M = 4.41$, $SE = .201$)(H1b).

Lastly, though we did not predict differences in this context, we compared participants' *evaluation* and *attribution of intentions* in the intentional unfair advantage context. Surprisingly, we found that older children were significantly more negative than were younger participants in

Figure 2

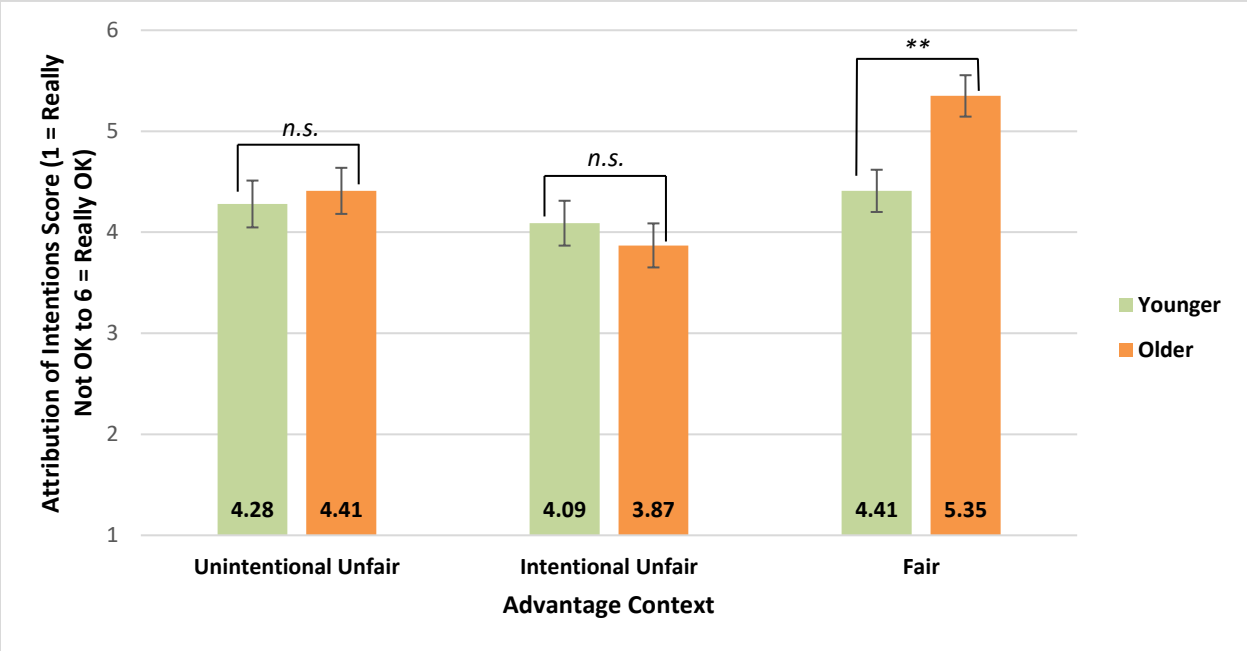
Younger and Older Participant Evaluations Across Three Advantage Types.



Note: n.s. Indicates difference from chance at $p \geq .05$, ** indicated difference from chance at $p < .01$, *** indicates difference from chance at $p < .001$.

Figure 3

In-Group and Out-Group Attribution of Intentions Across Three Advantage Types.



Note: n.s. Indicates difference from chance at $p \geq .05$, ** Indicates difference from chance at $p < .01$.

their evaluation of the intentional unfair advantage ($F(1, 115) = 16.706$, $p < .001$, $\eta^2 = .127$; older: $M = 1.77$, $SE = .218$; younger: $M = 3.04$, $SE = .222$) but they did not differ in their attribution of intentions ($F(1, 115) = .534$, $p = .466$, $\eta^2 = .005$; older: $M = 3.87$, $SE = .210$; younger: $M = 4.09$, $SE = .215$).

Taken together, our first set of hypotheses were not supported for the unintentional unfair advantage (H1a) but were supported for the fair advantage (H1b). While the lack of age-related differences for the unintentional unfair advantage context was surprising, we believe that this pattern makes more sense when considered alongside the group related findings reported later in the manuscript.

Across Advantage Contexts. After comparing responses between older and younger participants within individual advantage contexts we also investigated differences in older and younger children's responses when looking across the advantage contexts presented.

These tests showed that both older and younger children differed in their *evaluation* of the three advantage contexts (Older: $F(2, 114) = 98.576$, $p < .001$, $\eta^2 = .634$; Younger: $F(2,114) = 21.186$, $p < .001$, $\eta^2 = .271$), but for the *attribution of intentions* measure older children differed across advantage contexts ($F(2, 114) = 20.800$, $p < .001$, $\eta^2 = .267$) while younger children did not ($F(2, 114) = .935$, $p = .396$, $\eta^2 = .016$).

To test our hypothesis that older participants would *evaluate* the unintentional unfair advantage more positively than they did the intentional unfair advantage, and would show a similar pattern for the *attribution of intentions* measure (H2a), pair-wise comparisons were conducted. These comparisons confirmed our expectations for the *evaluation* measure ($p < .001$; UUA: $M = 3.09$, $SE = .228$; IUA: $M = 1.77$, $SE = .218$) but also revealed that older participants did not differ in their *attribution of intentions* for the two contexts ($p = .097$; UUA: $M = 4.41$, SE

= .214; IUA: M = 3.87, SE = .210). In contrast, younger participants did not differ for the two contexts on either the *evaluation* (p = 1.000; UUA: M = 2.82, SE = .232; IUA: M = 3.04, SE = .222) or the *attribution of intentions* measure (p = 1.000; UUA: M = 4.28, SE = .218; IUA: M = 4.09, SE = .215) (H2a). This pattern was directly in line with our prediction. We had expected, however, that older participants would differentiate both their evaluation and attribution of intentions responses.

To test our hypothesis that younger and older children would display a preference for the fair advantage context over both the unintentional and intentional unfair advantage context (H2b) we once again utilized pairwise comparisons. We found that older participants evaluated the fair advantage more positively than the unintentional unfair advantage (p < .001; FA: M = 5.23, SE = .205; UUA: M = 3.09, SE = .228) and more positively than the intentional unfair advantage (p < .001; FA: M = 5.23, SE = .205; IUA: M = 1.77, SE = .218), confirming our expectations. Further, older participants attributed better intentions in the fair advantage context than they did in the unintentional unfair advantage (p = .001; FA: M = 5.35, SE = .197; UUA: M = 4.41, SE = .214) and intentional unfair advantage contexts (p < .001; FA: M = 5.35, SE = .197; IUA: M = 3.87, SE = .210).

Likewise, younger participants evaluated the fair advantage more positively than the unintentional unfair advantage (p < .001; FA: M = 4.40, SE = .209; UUA: M = 2.82, SE = .232) and intentional unfair advantage (p < .001; FA: M = 4.40, SE = .209; IUA: M = 3.04, SE = .222) but younger children did *not* attribute different intentions between the fair and the unintentional unfair advantage (p = 1.000; FA: M = 4.41, SE = .201; UUA: M = 4.28, SE = .218) or the fair and intentional unfair advantage (p = .519; FA: M = 4.41, SE = .201; IUA: M = 4.09, SE = .215).

These findings largely supported our hypothesis that, with age, children would be more positive in their assessment of the fair advantage than the unfair advantages. Compared to both unfair advantages, older children evaluated the fair advantage more positively and attributed more positive intentions. Likewise, younger children evaluated the fair advantage more positively than the unfair advantages – but they did not attribute better intentions for the fair than unfair advantages. Again, the lack of differences for younger children's attribution of intentions response was surprising but may once again be attributable to the impact of the group identity findings reported later.

Age and Reasoning for Evaluations

To test our hypotheses about children's reasoning (H3), we utilized chi-squared analyses to determine the effect of children's age on the type of reasoning used to justify their evaluations. Results of the analyses showed that younger and older children displayed significantly different patterns in their reasoning for the unintentional unfair advantage context ($\chi^2(2) = 31.06$, $p < .001$) and the intentional unfair advantage context ($\chi^2(2) = 18.99$, $p < .001$), but not for the intentional fair advantage context ($\chi^2(2) = .325$, $p = .850$). As predicted, follow-up z-tests utilizing Bonferroni corrections revealed that younger children referenced group benefits more than older children for both the unintentional unfair advantage (younger: 78%; older: 21.4%) and the intentional unfair advantage (younger: 58.8%; older: 15.5%), while older children reasoned about mental states more than did younger children for the unintentional (younger: 12.2%; older: 55.4%) and intentional unfair advantage (younger: 29.4%; older: 51.7%) contexts. Further, when reasoning about the intentional unfair advantage context older children referred to moral reasons, such as fairness, more often than younger children (younger: 11.8%; older: 32.8%) (H3). This finding shows that younger children focused more on group benefit while older children were

focused on intentions and moral reasoning. Even though older and younger children did not always differ in their evaluation of an action they did show different patterns of reasoning when explaining their judgments.

Results Regarding Advantage Context and Group Identity

As stated previously, a significant interaction between advantage type and group identity was found for the *evaluation* measure ($p = .024$), while the interaction did not quite reach significance for the *attribution of intentions* measure ($p = .052$). Given the hypotheses regarding this interaction (H4 & H5) we proceeded with planned post-hoc analyses utilizing the estimated marginal means generated from the full omnibus model, as this allowed for comparisons between the in-group and out-group conditions while adjusting for all other included variables, while also accounting for the multiple comparisons inherent in our hypotheses and utilizing Bonferroni adjustments to reduce the possibility of Type 1 errors.

Within Advantage Contexts. Follow-up one-way ANOVAs were utilized to test our hypothesis that, for the unintentional unfair advantage context, participants reasoning about an in-group member would be more positive in their *evaluation* and *attribution of intentions* than would participants who were reasoning about an out-group member (H4a). Confirming our prediction, the results of the ANOVA revealed that participants in the in-group condition were more positive in their *evaluation* of the unintentional unfair advantage than were participants in the out-group ($F(1, 115) = 4.54$, $p = .035$, $\eta^2 = .038$; in-group: $M = 3.30$, $SE = .234$; out-group: $M = 2.61$, $SE = .226$), as shown in Figure 4, and participants in the in-group condition were also more positive in their *attribution of intentions* than were participants in the out-group condition ($F(1, 115) = 9.11$, $p = .003$, $\eta^2 = .073$; in-group: $M = 4.81$, $SE = .220$; out-group: $M = 3.89$, $SE = .212$), as shown in Figure 5 (H4a).

Likewise, follow-up one-way ANOVAs were utilized to test our prediction that participants in the in-group condition and the out-group condition would differ in their response on both measures for the fair advantage context (H4b). Once again confirming our prediction, the results of this analysis showed that participants in the in-group condition were more positive in their evaluation than participants in the out-group condition ($F(1, 115) = 18.56$, $p < .001$, $\eta^2 = .139$; in-group: $M = 5.44$ $SE = .211$; old-group: $M = 4.18$, $SE = .204$) but the two groups did not quite differ significantly in their attribution of intentions ($F(1, 115) = 3.92$, $p = .050$, $\eta^2 = .033$; in-group: $M = 5.16$, $SE = .203$; out-group: $M = 4.60$, $SE = .196$) (H4b).

As we did for the age-related hypotheses, we also compared participants in the in-group and out-group conditions on their responses to the intentionally unfair advantage, in order to fully investigate the interaction between advantage type and group identity. As expected, participants in the in-group and out-group conditions did not differ in their response to the intentional unfair advantage context for the evaluation ($F(1, 115) = 2.18$, $p = .143$, $\eta^2 = .019$; in-group: $M = 2.64$, $SE = .224$; out-group: $M = 2.18$, $SE = .216$) or attribution of intentions measures ($F(1, 115) = .508$, $p = .478$, $\eta^2 = .004$; in-group: $M = 4.08$, $SE = .216$; out-group: $M = 3.87$, $SE = .209$).

Across Advantage Contexts. Lastly, one-way repeated measures ANOVAs were utilized to test our hypotheses regarding the way participants in the in-group condition and out-group condition differed in their response pattern across the three advantage contexts for the *evaluation* (H5a) and *attribution of intentions* (H5b) measures. These tests showed that participants in both the in-group and out-group conditions differed in their *evaluation* of the three advantage contexts (in-group: $F(2, 114) = 65.16$, $p < .001$, $\eta^2 = .533$; out-group: $F(2, 114) = 36.03$, $p < .001$, $\eta^2 =$

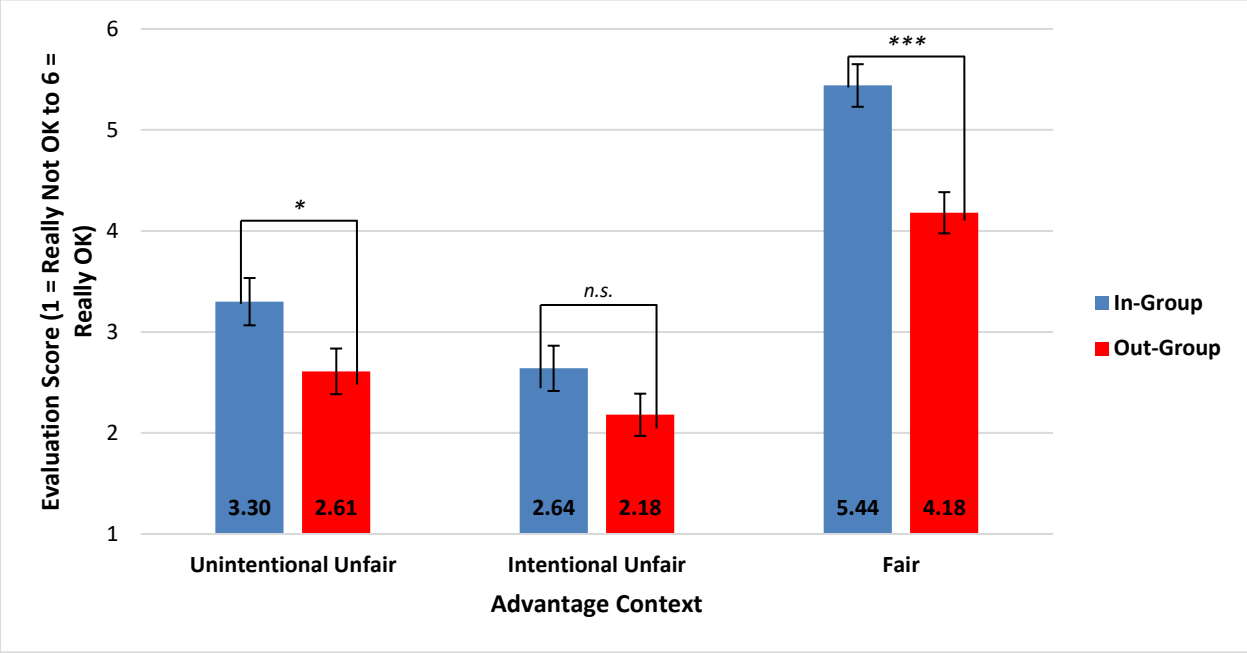
.387) (Figure 4) and their *attribution of intentions* (in-group: $F(2, 114) = 10.19$, $p < .001$, $\eta^2 = .152$; out-group: $F(2, 114) = 6.55$, $p = .002$, $\eta^2 = .103$) (Figure 5).

In order to better understand these significant findings, and to directly test our previously stated hypotheses, planned follow-up pairwise comparisons were utilized. These analyses revealed that participants in the in-group condition evaluated the fair advantage more positively than both the unintentional unfair ($p < .001$; FA: $M = 5.44$, $SE = .211$; UUA: $M = 3.30$, $SE = .234$) and intentional unfair ($p < .001$; FA: $M = 5.44$, $SE = .211$; IUA: $M = 2.34$, $SE = .224$) advantage contexts. Additionally, participants in the in-group condition evaluated the unintentional unfair advantage more positively than the intentionally unfair advantage ($p = .048$; UUA: $M = 3.30$, $SE = .234$; IUA: $M = 2.64$, $SE = .224$). This pattern was directly in line with our predictions (H5a) and showed that participants in the in-group condition strongly differentiated between the three advantage contexts and responded in a significantly different way when providing an *evaluation* for each.

When the responses made by participants in the in-group condition on the *attribution of intentions* measure were compared between advantage contexts we found that these participants rated the intentions of the fair advantage creator and the unintentional unfair advantage creator as having equally positive intentions ($p = .481$; FA: $M = 5.16$, $SE = .203$; UUA: $M = 4.81$, $SE = .220$), while their attribution of intentions for the intentional unfair advantage was more negative than it was for either the fair advantage ($p < .001$; FA: $M = 5.16$, $SE = .203$; IUA: $M = 4.08$, $SE = .216$) or unintentional unfair advantage ($p = .018$; UUA: $M = 4.81$, $SE = .220$; IUA: $M = 4.08$, $SE = .216$) (H5b). This pattern was, once again, directly in line with our predictions and suggests that participants in the in-group condition recognized the positive intent in the fair and unintentional unfair advantage contexts.

Figure 4

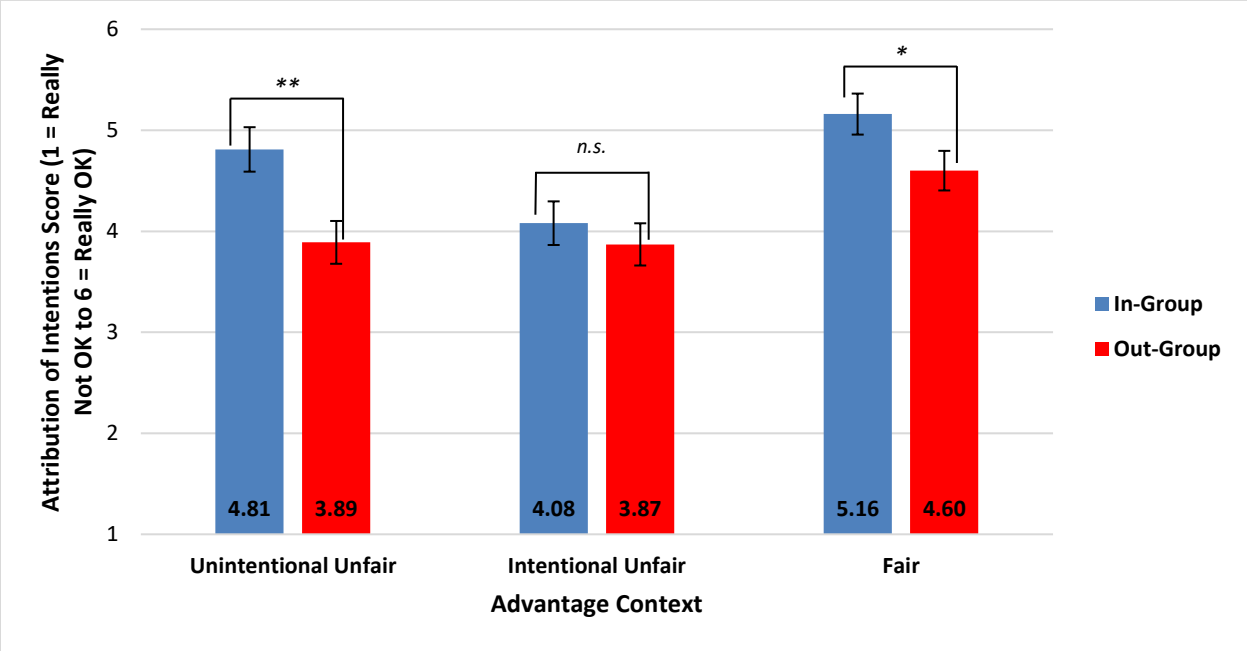
In-Group and Out-Group Evaluations Across Three Advantage Types.



Note: n.s. Indicates difference from chance at $p \geq .05$, * Indicates difference from chance at $p < .05$, *** Indicates difference from chance at $p < .001$.

Figure 5

In-Group and Out-Group Attribution of Intentions Across Three Advantage Types.



Note: n.s. Indicates difference from chance at $p \geq .05$, * Indicates difference from chance at $p < .05$, ** Indicates difference from chance at $p < .01$.

In contrast, participants in the out-group condition showed preferential ratings on both measures when comparing the fair advantage to the unintentional unfair (*evaluation*: $p < .001$; FA: $M = 4.18$, $SE = .204$; UUA: $M = 2.61$, $SE = .226$; *attribution of intentions*: $p = .010$; FA: $M = 4.60$, $SE = .196$; UUA: $M = 3.89$, $SE = .212$) and the intentional unfair (*evaluation*: $p < .001$; FA: $M = 4.18$, $SE = .204$; IUA: $M = 2.18$, $SE = .216$; *attribution of intentions*: $p = .006$; FA: $M = 4.60$, $SE = .196$; IUA: $M = 3.87$, $SE = .209$) advantage contexts. When comparing responses between the unintentional unfair and unfair advantage contexts however, participants in the out-group condition did not differ in their *evaluation* ($p = .313$; UUA: $M = 2.61$, $SE = .226$; IUA: $M = 2.18$, $SE = .216$) nor their *attribution of intentions* ($p = 1.000$; UUA: $M = 3.89$, $SE = .212$; IUA: $M = 3.87$, $SE = .209$) for the two unfair advantages. These results directly supported our predictions (H5c) and suggests that participants in the out-group condition responded to these scenarios based on the fairness of the advantage without considering the intentions of the advantage creator in the same way that participants in the in-group condition did.

Discussion

The results presented in this study provided several novel insights into how age and group identity are related to children's social cognitive and moral assessments of advantages in competitive contexts. During the course of this study, children reasoned about advantages created under one of three conditions: 1) when the advantage creator intentionally created an unfair advantage; 2) when the advantage creator unintentionally created an unfair advantage; and 3) when the advantage creator intentionally created a fair advantage. Furthermore, prior to hearing about these advantages children underwent a group affiliation task and as a result they were either making judgments regarding a team member whose actions benefitted the child's team or about a competitor whose actions hurt their team's chances. To the best of our

knowledge this study represents the first set of findings revealing that children's evaluations and attributions of intentions for these three forms of advantages differ as a function of the age and group identity of the participant. Further, this study presented evidence that children's recognition of fair advantages increases with age and that children display a preference in their fairness judgments when responding to an in-group member than an out-group member in some, but not all, contexts. Moreover, children's reasoning reflected age-related differences from a focus on benefiting the group with younger children to focus on the intentions of the transgressor and general principals of fairness for older children.

This discussion will focus first on the age related findings before turning to a discussion of the group findings reported in this manuscript. Following a discussion of these findings and their implications there will be a general discussion regarding future directions.

Age-Related Findings

Competitions provide a familiar setting for children where differences in reward are based on differences in skill or effort. One of the goals of this study was to replicate and extend previous findings showing that, with age, children are better able to recognize contextual factors that justify deviations from equal outcomes (Baumard et al., 2012; Noh et al., 2019). To this end, we assessed younger (four to six-years-old) and older (seven to ten-years-old) children's judgments of a fair advantage created through hard work and without an inherent rule violation or any negative intent. In line with our predictions, older children were significantly more positive in their evaluation of the fair advantage situation and attributed more positive intentions to the character who had created this type of advantage. While previous research has shown that children are more likely to reward meritorious individuals with age (Baumard et al., 2012; Noh et al., 2019) we believe that this is the first time this developmental pattern was tested in a

competitive intergroup context. These results show that the age-related patterns presented in this manuscript are robust and persistent, even in the face of strong social factors.

Another well-established developmental trend which we were able to successfully replicate and extend within the current study was the ability of children to distinguish between unintentional and intentional transgressions (Helwig et al., 1995; Zelazo et al., 1996). For both the evaluation and the attribution of intentions measure older children were significantly more positive when assessing the unintentional unfair advantage context than they were for the intentional unfair advantage context. In contrast, younger children did not provide significantly different ratings for the unintentional and intentional unfair advantage contexts on either of these measures. This pattern is consistent with a long line of research showing that children are better able to incorporate intentions into their moral judgments with age (Helwig et al., 1995; Zelazo et al., 1996). The findings presented here are unique in that these differences were found in a competitive intergroup context and that these age findings were above and beyond any group related differences. This further emphasizes the strength of these age-related differences in children's judgments of unintentional and intentional transgressions.

Unexpectedly, we had predicted that older children would be more positive in their evaluation and attribution of intentions for the unintentional unfair advantage context than would younger participants, but no significant differences were found. As previously stated, there is an extensive body of work showing children's understanding of accidents and unintentional consequences improve with age (Helwig et al., 1995; Zelazo et al., 1996) and this pattern would be expected to be especially prevalent in children's judgments of the unintentional transgression (D'Esterre et al., 2019). It is unclear why this pattern was not observed in this context, but one possibility is that a competitive context caused younger children to consider intentions more

intently and thus led them to behave similarly to their older peers. However, the reason for this null result is certainly an empirical question and further research should be undertaken to investigate developmental changes in children's understanding of intentions in competitive contexts.

Additionally, while we did not expect a difference in this context, we found that older children were significantly more negative than their younger peers when evaluating the intentional unfair advantage. When designing this study no difference was expected based on age for this context, but upon further reflection this finding fits with the previous literature. In particular, McGuire et al. (2018) has shown that older children reason heavily regarding the importance of fair competition, and therefore this condemnation of the intentional unfair advantage may reflect a stronger response to the willful violation of the norms and rules which govern a fair competition.

Group Related Findings

Past research has shown that children often assign blame to an individual who had good intentions but committed an act with negative outcomes (Killen et al., 2011; Knobe, 2005). What has not been investigated is the role of group membership, such as in-group and out-group affiliation in a team context. Are children more likely to negatively evaluate, or attribute negative intentions to an out-group member than in in-group member when the team member has good intentions but commits an act that creates an advantage for one group? Further, does the manner in which this advantage was created change the way children reason about in-group and out-group members? The findings of our group-based predictions provided interesting and novel results that serve to further support and provide additional depth to these results.

In order to better understand how group identity influenced children's assessment of advantages it is helpful to focus first on the fair advantage context as it disentangles the creation of an advantage from the moral issues inherent in a rule violation. One possibility would be that participants in both conditions would respond to this scenario similarly as the advantage was created without a rule violation – which would have supported an impartial moral stance. However, the results of our study showed that participants who were asked to reason about an out-group member viewed the fair advantage significantly less positively than those who were reasoning about an in-group member, and that this pattern was present for both the evaluation measure and their attribution of intentions. This suggests that children's responses to this fair advantage were not based solely on the fairness of the advantage, but that they were also influenced by whether or not the advantage benefitted or harmed their group's chances in the competition.

Within the realm of unfair advantages we also measured how a shared or differing group identity influenced children's assessment of unintentional and intentional transgressions. In line with our predictions, we found that participants were less favorable in their assessment of the unintentional unfair advantage when reasoning about an out-group member than they were when reasoning about an in-group member, but that both groups were equally negative in their response to the intentionally unfair advantage. This finding is very important as it establishes a limitation to the ability of children's concern for group identity to influence their moral judgments. When the context was complex and involved tracking incorrect beliefs it was found that the identity of the character led to different responses of in-group and out-group members, but when faced with a straightforward moral transgression (e.g., the intentional unfair advantage)

children were able to set aside the identity of the character and evaluate the transgression committed as equally wrong.

We also had predictions regarding the pattern of responses across unfair advantages for participants in the in-group and out-group conditions. The relationship between group identity and mental state knowledge is a recent focus of study in the developmental literature (Glidden et al., 2021; Gönültaş et al., 2020; McLoughlin & Over, 2017; Rizzo & Killen, 2018). The findings in the current study contribute to this emerging literature by revealing that children viewed unintentional unfair and fair advantages created by an out-group member as more wrong than did children who identified as an in-group member. This pattern reveals that participants were significantly more attuned to the intentions of their teammate than they were to the intentions of their opponent.

General Discussion

The novel findings of this study were that children's age and their group affiliation uniquely and independently impacted children's moral judgments of advantages and advantage creators in a competitive team context. Children's evaluations and attributions of intentions differed across three types of advantages, ones that were intentionally unfair (cheating), unintentionally unfair (by mistakenly violating a contest rule) or fair (the other team was lazy and did not help their team to win). Overall, children tended to rate the fair advantage as more acceptable than the unfair advantages and rated the intentional unfair (cheating) advantage as more wrong than the other advantages. This finding was consistent with findings on children's concepts of fair and equal treatment of others (Smetana et al., 2014).

Both fair and unfair advantages were found to be subject to the influences of group identity, such that children were more critical of an out-group member's actions than they were

for the actions of an in-group member. These findings are in line with others which have shown in-group preferences in situations in which resources are allocated (Dunham et al., 2011; Sparks et al., 2017; Elenbaas, 2019). However, unlike previous studies, these findings were demonstrated in a context that was explicitly competitive, and in which children were members of groups that were either advantaged or disadvantaged by a character in one of the groups. By asking children to make evaluations in a competitive group context, children focused on the concerns of the group rather than just individual benefits, and as a result, the pattern of judgments looked very different for members who shared a group identity with the advantage creator compared to those who held an opposing group identity. It is also important to acknowledge that, even in this competitive environment, it was found that in straightforward transgressions the effect of group identity often become non-significant and instead concerns for morality lead in-group and out-group members to respond in a similar fashion.

The fact that children evaluated fair advantages more positively than either type of unfair advantage is an important finding and one which, to our knowledge, has not been demonstrated in the literature to date in the context of a competitive contest. Children's understanding of fair advantages is likely related to their developing understanding of merit (Noh et al., 2019; Baumard et al., 2012), specifically the recognition that those who work harder are entitled to a larger reward. Our study indicates that children recognize the value of merit in a competitive intergroup context, but that a child's team identity influences this emphasis on merit. In particular, children in the out-group condition were able to recognize the good intentions of a character who worked hard but evaluated this action less positively than children in the in-group condition, whom the action benefitted.

In addition to differences between fair and unfair advantages, it was also shown that children, on average, more positively evaluated an unintentional unfair advantage over an intentional unfair advantage. This finding supports previous work showing that children were more positive in their assessment of unintentional transgressions than they were of intentional transgressions (D'Esterre, et al, 2019). However, unlike previous research on children's understanding of intentions, children in this study were asked to assess rule violations (e.g., violating the contest rule of only feeding the pumpkins one cup of plant food per day) that affected a group rather than individuals, and participants were directly affiliated with either the advantaged or disadvantaged group.

This study suggests that children may be more likely to attend to the intentions of individuals with whom they share a group identity in the context of a competition, and that seeing an individual as a member of an out-group may suppress the salience of intentional information. Given the fundamental necessity of interpreting intentions when navigating day-to-day social interactions, this presents a significant obstacle to harmonious intergroup functioning. This finding, coupled with previous research showing that (young, White majority) children are more likely to assume positive intentions for members of their racial in-group than members of their racial out-group (McGlothlin & Killen, 2010), suggests that this interaction between group identities and mental state information could be a significant factor in prejudicial and biased behaviors. When presented with a cognitively complex scenario, individuals may be less likely to fully consider intentions if they perceive the target as "other" and may also be less likely to give them the "benefit of the doubt". Here we have shown that children are more likely to encode intention information for someone they see as similar to them, even in an "ad hoc" team

situation, and this potentially has ramifications for research on intergroup relations and conflict mediation strategies and would likewise be an important avenue for future research.

Future research should be conducted to explore the ways in which in-group biases are differentially present for prototypic and more difficult or complicated moral scenarios. One possible avenue for future research would be to explore the ways in which in-group bias influences children's understanding and assessment of scenarios in which intentions are not explicitly stated, as previous research has shown that ambiguous intentional contexts are subject to group biases (McGlothlin & Killen, 2010).

Additionally, it would be of benefit for future research to investigate the impact of the competitive context through careful manipulation. Previous research has shown that children and adolescents respond differently between competitive and cooperative contexts, and it stands to reason that children would also respond differently between situations which more strongly or weakly invoke competitive pressure. This could be done by creating scenarios with friendly competition as opposed to longstanding rivalries, by varying the importance of the reward (e.g., pride vs. significant material rewards), or how much the groups are invested in the competition. Measuring the factors that influence children's perception of competitive pressure, the impact of varied levels of competitive pressure, and the ways in which these distinct forms of competitive pressure impact children's evaluation and decisions has the potential to be a fruitful line of research.

While children's responses to the evaluation and attribution of intentions measure were both shown to be sensitive to the advantage context, the group identity manipulation, and the age of the participant it is worth noting that children's evaluation scores tended to be lower on average than their attribution of intentions. One possibility is that the attribution of intentions

measure was seen as a judgment of the individual while the evaluation measure was restricted to a judgment of the behavior only. Children may feel more comfortable providing a negative assessment of an individual's behavior rather than their character and future research should explore this distinction. It's also possible that this is the result of the order in which children heard about each advantage context, and thus it may be beneficial for future research to test for order effects on children's evaluation and attribution of intentions. Additionally, future research should utilize reasoning for both the evaluation and attribution of intentions measures in order to determine if children are reasoning about these two measures in meaningfully different ways.

The results presented in this study provide evidence that children distinguish between different types of advantages and that their assessment of these advantages is influenced by their affiliation with the character creating the advantage. This finding is supported by previous work which has shown that children's understanding of intentions is viewed through the lens of their group's position within the context (Nesdale et al., 2004), and that this understanding of intentions can be influenced by whether their group is advantaged or disadvantaged (Rizzo & Killen, 2018). Thus, these findings have implications for intervention programs designed to reduce biases and promote fairness in childhood as they reveal that children are considering a wide range of social factors when evaluating situations in their everyday peer interactions.

References

Baron, A.S. (2015). Constraints on the development of implicit intergroup attitudes. *Child Development Perspectives, 9(1)*, 50-54. Doi: 10.1111/cdep.12105

Baron, A. S., & Dunham, Y. (2015). Representing 'us' and 'them': Building blocks of intergroup cognition. *Journal of Cognition and Development, 16,* 780-801. DOI: 10.1080/15248372.2014.1000459

Baumard, N., Mascaro, O., & Chevallier, C. (2012). Preschoolers are able to take merit into account when distributing goods. *Developmental Psychology*, *48*, 492–498. DOI: 10.1037/a0026598

Bernhard, R. M., Martin, J. M., & Warneken, F. (2020). Why do children punish? Fair outcomes matter more than intent in children's second- and third-party punishment. *Journal of Experimental Child Psychology, 200,* 104909 DOI: 10.1016/j.jecp.2020.104909

Blake, P. R., McAuliffe, K., & Warneken, F. (2014). The developmental origins of fairness: The knowledge–behavior gap. *Trends in Cognitive Sciences*, *18*, 559–561. DOI: 10.1016/j.tics.2014.08.003.

Cushman, F., Sheketoff, R., Wharton, S., & Carey, S. (2013). The development of intent-based moral judgment. *Cognition, 127*(1), 6-21. Doi: 10.1016/j.cognition.2012.11.008

D'Esterre, A.P., Rizzo, M.T., & Killen, M. (2019). Unintentional and intentional false statements: The role of morally-relevant theory of mind. *Journal of Experimental Child Psychology, 177,* 53-69. DOI: 10.1016/j.jecp.2018.07.013

Dunham, Y., Baron, A. S., & Carey, S. (2011). Consequences of "minima" group affiliations in children. *Child Development*, *82*(3), 793-811. Doi: /10.1111/j.1467-8624.2011.01577.x

Elenbaas, L. (2019). Perceived access to resources and young children's fairness judgments. *Journal of Experimental Child Psychology, 188,* 73-82. DOI: 10.1016/j.jecp.2019.104667

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149–1160. DOI: 10.3758/brm.41.4.1149

Glidden, J., D'Esterre, A. P., & Killen, M. (2021). Morally-relevant theory of mind mediates the relationship between group membership and moral judgments. *Cognitive Development, 57.* DOI: 10.1016/j.cogdev.2020.100976

Gönültaş, S., Selçuk, B., Slaughter, V., Hunter, J. A., & Ruffman, T. (2020). The capricious nature of theory of mind: Does mental state understanding depend on the characteristics of the target? *Child Development, 91,* 280-298. DOI: 10.1111/cdev.13223

Helwig, C. C., Hildebrandt, C., & Turiel, E. (1995). Children's judgments about psychological harm in social context. *Child Development, 66,* 1680-1693. DOI: 10.2307/1131903

Jambon, M., & Smetana, J. G. (2013). Moral complexity in middle childhood: Children's evaluations of necessary harm. *Developmental Psychology, 50,* 22-33. DOI: 10.1037/a0032992

Killen, M., Mulvey, K. L., Richardson, C. B., Jampol, N., & Woodward, A. (2011). The "accidental transgressor": Morally-relevant theory of mind. *Cognition, 119,* 197-215.DOI: 10.1016/j.cognition.2011.01.006

Killen, M., & Rutland, A. (2011). *Children and social exclusion: Morality, prejudice, and group identity.* Wiley-Blackwell. DOI: 10.1002/9781444396317

Knobe, J. (2005). Theory of mind and moral cognition: Exploring the connections. *Trends in Cognitive Sciences, 9*, 357-359.

McAuliffe, K., & Dunham, Y. (2017). Fairness overrides group bias in children's second-party punishment. *Journal of Experimental Psychology: General, 146*(4), 485-494. DOI: 10.1037/xge0000244

McGlothlin, H., & Killen, M. (2010). How social experience is related to children's intergroup attitudes. *European Journal of Social Psychology, 40,* 625-634. DOI: 10.1002/ejsp.733

McLoughlin, N., & Over, H. (2017). Young children are more likely to spontaneously attribute mental states to members of their own group. *Psychological Science, 28,* 1503-1509. DOI: 10.1177/09567617710724

McGuire, L., Rizzo, M.T., Killen, M., & Rutland, A. (2018). The development of intergroup resource allocation: The role of cooperative and competitive in-group norms. *Developmental Psychology*, *54*, 1499-1506. DOI: 10.1037.dev0000535

McGuire L., & Rutland, A. (2020). Children and adolescents coordinate group and moral concerns within different goal contexts when allocating resources. *British Journal of Developmental Psychology, 38,* 529-542. DOI: 10.1111/bjdp.12342

Mulvey, K. L., Rizzo, M. T., & Killen, M. (2016). Challenging gender stereotypes: Theory of mind and peer group dynamics. *Developmental Science, 19,* 999-1010. DOI: 10.1111/desc.12345

Nesdale, D. (2004). Social identity processes and children's ethnic prejudice. In M. Bennett & F. Sani (Eds.), *The development of the social self* (pp. 219-245). New York, NY, US: Psychology Press. DOI: 10.4324/9780203391099_chapter_8

Nesdale, D., Durkin, K., Maass, A., & Griffiths, J. (2004). Group status, outgroup ethnicity and children's ethnic attitudes. *Journal of Applied Developmental Psychology, 25,* 237-251. DOI: 10.1016/j.appdev.2004.02.005

Nobes, G., Panagiotaki, G., & Pawson, C. (2009). The influence of negligence, intention, and outcome on children's moral judgments. *Journal of Experimental Child Psychology, 104*, 382-397. Doi: 10.1016/j.jecp.2009.08.001.

Noh, J., D'Esterre, A., & Killen, M. (2019). Effort or outcome? Children's meritorious decisions. *Journal of Experimental Child Psychology, 178*, 1-14. DOI: 10.1016/j.jecp.2018.09.005

Paulus, M., & Moore, C. (2014). The development of recipient-dependent sharing behavior and sharing expectations in preschool children. *Developmental Psychology, 50*, 914-921. DOI: 10.1037/a0034169

Rhodes, M., & Brickman, D. (2011). The influence of competition on children's social categories. *Journal of Cognition and Development, 12,* 194-221. DOI: 10.1080/15248372.2010.535230

Rizzo, M.T., & Killen, M. (2016). Children's understanding of equity in the context of inequality. *British Journal of Developmental Psychology*. DOI: 10.1111/bjdp.12150

Rizzo, M. T., & Killen, M. (2018). How social status influences our understanding of others' mental states. *Journal of Experimental Child Psychology, 169,* 30-41. DOI: 10.1016/j.jecp.2017.12.008.

Robbins, E., Starr, S., & Rochat, P. (2016). Fairness and distributive justice by 3- to 5-year-old Tibetan children. *Journal of Cross-Cultural Psychology*, *47*(3), 333-340. DOI: 10.1177/0022022115620487

Schmidt, M.F.H., & Sommerville, J.A. (2011). Fairness expectation and altruistic sharing in 15-month-old humans. *PlosOne, 6,* 1-7. DOI: 10.1371.journal.pone.0023223.

Shaw, A., & Olson, K. R. (2012). Children discard a resource to avoid inequity. *Journal of Experimental Psychology: General*, *141*, 382–395. DOI: 10.1037/a0025907

Smetana, J. G., Jambon, M., & Ball, C. (2014). The social domain approach to children's moral and social judgments. In M. Killen & J. G. Smetana (Eds.), *Handbook of moral development* (pp 23-45). New York, NY, US: Psychology Press.

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*. DOI: 10.1371/journal.pone.0059510

Sparks, E., Schinkel, M.G., & Moore, C. (2017). Affiliation affects generosity in young children: The roles of minimal group membership and shared interests. *Journal of Experimental Child Psychology, 159,* 242-262. DOI: 10.1016/j.jecp.2017.02.007

Strid, K., & Meristo, M. (2020). Infants consider the distributor's intentions in resource allocation. *Frontiers in Psychology, 11,* 353-372. DOI: 10.3389/fpsyg.2020.596213

Williams, A. & Moore, C. (2014). Exploring disadvantageous inequality aversion in children: How cost and discrepancy influence decision-making. *Frontiers in Psychology, 5,* 1088. DOI: 10.3389/fpsyg.2014.01088

Zelazo, P. D., Helwig, C. C., & Lau, A. (1996). Intention, act, and outcome in behavioral prediction and moral judgment. *Child Development, 67,* 2478-2492. DOI: 10.1111/j.1467-8624.1995.tb00958.x

Supplemental Materials

Mean Participant Responses Split by Context, Age, and Group Identity

Group Identity	Participant Age	Advantage Context	Outcome Measure	Mean (SE)
In-Group	Younger	Unintentional Unfair Advantage (UUA)	Evaluation	3.233 (.343)
			Attribution of Intentions	4.720 (.321)
		Intentional Unfair Advantage (IUA)	Evaluation	3.399 (.328)
			Attribution of Intentions	4.266 (.316)
		Fair Advantage (FA)	Evaluation	5.172 (.309)
			Attribution of Intentions	4.727 (.297)
	Older	Unintentional Unfair Advantage (UUA)	Evaluation	3.369 (.320)
			Attribution of Intentions	4.894 (.300)
		Intentional Unfair Advantage (IUA)	Evaluation	1.875 (.306)
			Attribution of Intentions	3.900 (.295)
		Fair Advantage (FA)	Evaluation	5.717 (.288)
			Attribution of Intentions	5.588 (.277)
Out-Group	Younger	Unintentional Unfair Advantage (UUA)	Evaluation	2.410 (.314)
			Attribution of Intentions	3.841 (.295)
		Intentional Unfair Advantage (IUA)	Evaluation	2.689 (.301)
			Attribution of Intentions	3.905 (.290)
		Fair Advantage (FA)	Evaluation	3.627 (.283)
			Attribution of Intentions	4.096 (.272)
	Older	Unintentional Unfair Advantage (UUA)	Evaluation	2.805 (.325)
			Attribution of Intentions	3.930 (.305)
		Intentional Unfair Advantage (IUA)	Evaluation	1.668 (.310)
			Attribution of Intentions	3.832 (.300)
		Fair Advantage (FA)	Evaluation	4.736 (.293)
			Attribution of Intentions	5.103 (.281)

Note. All mean values reported are estimated marginal mean values.