



# Do young children accept responsibility for the negative actions of ingroup members?



Harriet Over<sup>a,\*</sup>, Amrisha Vaish<sup>b</sup>, Michael Tomasello<sup>c</sup>

<sup>a</sup> University of York, York, YO10 5DD, United Kingdom

<sup>b</sup> University of Virginia, United States

<sup>c</sup> Max Planck Institute for Evolutionary Anthropology, Germany

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## ABSTRACT

This study investigated whether young children accept responsibility for the negative actions of ingroup members. Five-year-old children watched a transgressor break someone else's valued possession. Depending on condition, this transgressor either belonged to the same group as the child or a different group from the child. Coding of children's non-verbal behaviour indicated that they displayed more signs of guilt (but not other negative emotions) when the transgressor belonged to their own group than the other group. Furthermore, when the transgressor belonged to their own group, children were more likely to say that their own group should apologise for the damage and that they themselves should try to repair the broken object. Children's connections to their groups are thus so profound that they appear to feel responsible for the negative actions of their group members even when they had no personal involvement in the harm those actions caused.

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## 1. Introduction

Human evolution has been marked by an ever-increasing dependence of individuals on one another, from cooperative foraging to group defence (Boyd, Richerson, & Henrich, 2011; Brewer, 2007; Tomasello, Melis, Tennie, Wyman, & Herrmann, 2012). As a result of this dependence, individuals feel profound connections to their social groups. These connections are so powerful that individuals are often willing to make phenomenal sacrifices for their group members, sometimes even being willing to give up their own lives to protect them (Swann, Gomez, Dovidio, Hart, & Jetten, 2010). Humans' connections to their social groups also have a darker side, however, as they can lead to prejudice and discrimination against members of other groups.

The depth of our connections to our social groups is shown very strikingly in emotions such as collective pride and collective guilt. Pride and guilt are typically thought of as responses to individuals' own actions (Lickel, Schmader, Curtis, Scarnier, & Ames, 2005). The experience of guilt, for example, is often conceptualized as an aversive emotion that follows the realization that one has harmed another person or the group (Nelissen & Zeelenberg, 2009; Tangney & Dearing, 2002). Research in social psychology, however, has demonstrated that we sometimes report feeling guilty for the negative actions of our ingroup members when we played no personal role in the harm those actions brought about.

\* Corresponding author.

E-mail address: [harriet.over@york.ac.uk](mailto:harriet.over@york.ac.uk) (H. Over).

An important consequence of guilt is that it leads us to accept responsibility and, in doing so, seek to compensate for the damage that has been caused (de Hooge, Zeelenberg, & Breugelmans, 2007; Ketelaar & Au, 2003; Vaish, Carpenter, & Tomasello, *in press*). Testing the consequences of collective guilt, Doosje, Branscombe, Spears and Manstead (1998) asked Dutch adults to read either an unfavourable description of their country's imperial past (emphasising the bloodshed in Indonesia and exploitation of labour) or a favourable description of this period (emphasising the education and infrastructure the Dutch brought to the area). Participants who heard the unfavourable information subsequently tended to more strongly endorse items measuring the extent to which they thought they and the Dutch government ought to compensate the Indonesians for the effects of colonialism.

Accepting responsibility and seeking to compensate for the negative actions of ingroup members is thought to serve important functions in human social life. For example, doing so can reduce the probability that the victims will retaliate against the individual who accepts responsibility, or against that individual's group (Lickel, Schmader, & Barquissau, 2004). It can thus reduce the likelihood that intergroup conflict will escalate to dangerous levels (Boehm, 1984). It may, therefore, allow for the regulation of group life in a similar way that the acceptance of personal responsibility for one's own wrongdoing allows for the regulation of more intimate relationships (Lickel et al., 2004).

Despite the importance of collective responsibility to our understanding of human social life, relatively little is known about this phenomenon in young children. Certainly, the origins of intergroup bias appear very early in development. Even infants prefer to learn and take toys from individuals who speak their own language than from individuals who speak a different language (Buttelmann, Zmyj, Daum, & Carpenter, 2013; Kinzler, Dupoux, & Spelke, 2007). Older children are able to accurately categorise themselves as belonging to some groups and not others (e.g., Aboud, 1987, 2001; Bennett & Sani, 2008) and explicitly prefer members of their own group, even when those groups are artificially created in the lab (e.g., Dunham, Baron, & Carey, 2011).

The developmental foundations of collective responsibility, however, have not yet been widely investigated. What is reasonably well established is that by around the age of two or three years, children tend to accept responsibility for damage they have caused themselves and try to repair it (e.g., Barrett, Zahn-Waxler, & Cole, 1993; Kochanska, Gross, Lin, & Nichols, 2002; Vaish et al., *in press*). However, to our knowledge, only one study so far has investigated children's tendency to accept *collective* responsibility. Bennett and Sani (2008) mention a study that was designed to test whether children accept responsibility for the negative actions of their ingroup members. The authors asked 5-, 7- and 9-year-old children to imagine a scenario in which either they themselves or someone else from their school broke a window at another school. Results showed that the 7- and 9-year-old children reported that they would want to apologise in both cases. Five-year-olds, on the other hand, reported that they would only want to apologise when they themselves had broken the window. Although these results are suggestive, they are difficult to interpret for two reasons. First, the argument that older children accept collective responsibility is based on a null result – these children's responses did not differ when they were asked about themselves and when they were asked about an ingroup member. Second, and relatedly, in order to make the argument that children accept responsibility for the actions of their ingroup members, it is critical to show not only that they accept responsibility for their ingroup members' negative actions but also that they accept responsibility more often for the negative actions of ingroup members than for the negative actions of outgroup members. Bennett and Sani's results leave open the possibility that the older children did not accept collective responsibility for ingroup member's actions, but rather that they had learned to apologise more often and in more situations than younger children regardless of who performed the negative action.

In the present study, we built on this previous research in order to investigate whether children are more likely to accept responsibility for the negative actions of ingroup members than for the negative actions of outgroup members. In order to do this, we created a scenario in which a valued object was broken either by the child's ingroup member or the child's outgroup member. We then investigated children's acceptance of collective responsibility through a number of different measures. First, we coded children's displays of emotion. We predicted that children would display more signs of guilt when the valued object had been broken by an ingroup member. In order to ensure that the effects were specific to guilt, we also coded children's displays of other negative emotions, more specifically, embarrassment, sadness and fear. We predicted that displays of these other negative emotions would not differ between conditions. Next, we asked children two explicit questions relating to repairing the damage caused by the negative event. The first question we asked children was who should apologise for the negative event – their own group or the other group. This question was designed to check whether children understood the general situation and were able to answer questions about group level responsibility. We predicted that children would be significantly more likely to answer that their own group should apologise when the object was broken by an ingroup member. The second question we asked children was who should try to repair the broken object, themselves or an individual from the other group. This second question was an important addition because neither individual actually broke the object. We predicted that children would report that they themselves ought to repair the object more often when it was broken by an ingroup member than an outgroup member. Finally, we also investigated whether children would be more likely to spontaneously try to repair the object when it had been broken by a member of their own group.

We chose to investigate these questions with five-year-old children rather than the somewhat older children who showed signs of collective responsibility in Bennett and Sani's (2008) study. We reasoned that, by creating a situation in which a valued object was actually broken, rather than using a hypothetical scenario, we might be able to detect signs of collective responsibility even in these younger children. Many of the pre-requisites for collective responsibility seem to be in place by five years of age: we know from previous research that children of this age categorise themselves as belonging to some groups and not others (Aboud, 2001) and that they are sensitive to even artificially created groups (e.g., Dunham et al., 2011; Nesdale



**Fig. 1.** Photographs of the doll intact (left) and broken (right).

**Table 1**  
The experimental roles.

Puppet name	Puppet role	Description of role	Group membership	Operated by
Ape	Transgressor	Broke the doll	Dependent on condition	Experimenter 1
Teddy	Victim	Owned the doll broken by the ape	None	Moderator
Cow	Outgroup	Served as the comparison point for the test questions	Child's outgroup	Dependent on condition
Fox	Extra	Evened up the numbers in the two groups	Dependent on condition	Experimenter 2

& Flesser, 2001; Engelmann, Over, Herrmann, & Tomasello, 2013). Moreover, by this age, children accept responsibility for their own negative actions in interpersonal contexts and recognize and value the acceptance of responsibility in others (Kochanska et al., 2002; Vaish, Carpenter, & Tomasello, 2011, in press).

## 2. Method

### 2.1. Participants

Participants were 74 five-year-olds (mean age 5 years, 6 months, age range 5 years, 3 months – 5 years, 9 months; 35 females). Thirty-nine of these children were in the Ingroup condition and 35 were in the Outgroup condition. A further 4 children were tested but dropped from analysis as a result of experimenter error (1), equipment failure (1) or successfully repairing the doll before the test phase (2). Children were recruited from and tested in their kindergartens in a mid-sized town in Germany.

### 2.2. Materials and characters

The materials for the group manipulation consisted of four armbands and scarves (two yellow and two green), and two musical boxes (one yellow and one green). The musical boxes could be made to produce sounds by throwing marbles down a long chute such that they rolled onto a glockenspiel fastened to the inside of the box. The materials for the breaking event consisted of a doll that had been modified in such a way that the head fell off (remaining attached to the body with a few strands of wool) when it was lightly shaken (see Fig. 1; cf. Kochanska, Casey, & Fukumoto, 1995).

Testing was conducted by three female experimenters. These experimenters operated four animal puppets, and it was these four animal puppets that formed the main characters in the experiment. The characters were: a transgressor, a victim, an outgroup member, and an extra puppet (see Table 1). In addition to these four characters, one of the experimenters acted as a moderator, introducing the games and asking the test questions.

### 2.3. Design and counterbalancing

The study had a between-subjects design with two conditions: Ingroup and Outgroup. Children in both conditions watched the transgressor break the victim's precious doll. What varied between conditions was the group to which the transgressor belonged: for approximately half of children, the transgressor belonged to the same group as them and, for the other half of children, the transgressor belonged to a different group from them. The group to which the child and the puppets belonged (Yellow or Green) was manipulated through the use of group markers and a brief turn-taking game.

Following the breaking event, there was a brief period (lasting approximately 40 s) after the doll broke and before the moderator noticed and commented on the broken doll. This period was used to code (from video) how many signs of guilt and other negative emotions children displayed. We asked two raters, who were unaware of the hypotheses of the study, to watch the videos and code how guilty, embarrassed, sad and afraid they thought each child felt by looking at their nonverbal behaviour.

Following this period, we asked children two explicit questions. In a preliminary question, we asked children which group should apologise, the Yellow group or the Green group. Following this, we asked children who should try to repair the doll, themselves or someone from the other group (note that neither the child nor this other individual actually broke the doll). After these two questions had been asked, we also measured how many children attempted to repair the doll.

The colour of the group to which children were allocated (Yellow or Green) and the position of the transgressor and outgroup puppets (to the right or left of children) were counterbalanced. Approximately the same number of boys and girls participated in each condition.

#### 2.4. Procedure

The moderator invited the child into a quiet room in his or her kindergarten and introduced him or her to the transgressor, outgroup, and extra puppet.<sup>1</sup> Once the child was sitting comfortably at the table with the three puppets, the moderator introduced the group manipulation by saying 'And now we're all going to play something and for that, we need two groups: a Yellow group and a Green group'. The moderator then appeared to randomly allocate the child to one of the two groups (the Yellow group or the Green group) by asking them to choose one of two counters from her closed hands (though in fact, the group that the child was allocated to was decided prior to testing and so both counters in the moderator's hands were of the same colour).

What happened next varied according to condition. In the Ingroup condition, the moderator allocated the transgressor to the same group as the child and the extra puppet to the other group from the child. In the Outgroup condition, the moderator allocated the transgressor to the other group from the child, and the extra puppet to the same group as the child. The Outgroup puppet was always allocated to the other group from the child. Thus, in both conditions, the Yellow group and the Green group each had two members.

Following the group allocation, to reinforce the salience of the groups, the child and the other member of his or her group were given scarves and armbands matching the colour of the group to which they had been assigned. The moderator then introduced one of the musical boxes (which also matched the colour of the child's group), and explained how the child and the other member of their group could operate it together. The child and his or her group member (the transgressor in the Ingroup condition and the extra puppet in the Outgroup condition) then took turns making the musical box function by throwing marbles down the chute. During this game, the group member commented that she liked being in the same group as the child.

Following this, the members of the other group were given their scarves and armbands and introduced to the second musical box (all of which matched the colour of their group). The two members of the other group then played with the musical box in same way as the child and his or her group member had done and commented that they liked being in a group together. These playful, turn-taking interactions were designed to enhance the importance of the groups to children and to set up the context for the later breaking event.

Once the two groups had completed their games, the moderator said she wanted everyone to meet Teddy and introduced them to the victim puppet. The victim puppet appeared from under the table and introduced himself to the two groups. He then announced that he wanted to show the two groups his favourite doll, and fetched it from under the table. The victim lay this doll on the table and spent approximately 45 s pointing out various features of the doll and explaining to the two groups how much he loved it. During this period, he pointed out that the doll was holding a marble in a small bag. Once he had finished describing the doll, the victim announced that he had to leave but that he would leave his beautiful doll in the middle of the table. He then placed the doll midway between the two groups, and told them that they could play more and that he would see them later. After he said this, he disappeared under the table.

At this point, the puppets from the two groups brought out their musical boxes once more. The transgressor then looked around the table and pointed out that there were no more marbles for his group to throw into the musical box. He then appeared to notice the doll and said that he would take the doll's marble for his group. The transgressor then moved towards the doll and attempted to dislodge the marble from the doll's hand. In doing so, he broke the doll and let out a small gasp, saying 'Oh the doll' in a sad voice. Following the breaking event, he alternated his gaze twice between the broken doll and the child's face. The transgressor and the extra puppet then disappeared from the scene, moving back from the table slowly and without comment. This left the child and the Outgroup puppet at the table.

The moderator then returned to the interaction and removed the two musical boxes from the table. Once she had cleared the table, she appeared to notice the broken doll. She picked it up and talked briefly about how sad the victim would be that his doll was broken. The moderator then addressed the child and the Outgroup puppet and asked who should apologise to the victim, the Yellow group or the Green group. If the child did not reply, the moderator addressed the question directly to the child, asking again who should apologise, the Yellow group or the Green group. Once the child had answered this question, or it was clear that he or she would not answer, the moderator mentioned that someone from one of the two groups had broken the doll and suggested that perhaps someone ought to try and fix it. She then addressed the child and the Outgroup puppet again and asked who should try to repair the doll. If the child did not answer, she addressed the child directly and

<sup>1</sup> Although each of these puppets were referred to by their names, we refer to them here by their role in the experiment in order to make the procedure easier to follow.

**Table 2**  
Children's nonverbal displays of emotion.

Emotion	Ingroup condition		Outgroup condition	
	Mean	Standard deviation	Mean	Standard deviation
<b>Guilt</b>	<b>2.15</b>	<b>0.85</b>	<b>1.6</b>	<b>0.77</b>
Embarrassment	2.05	0.9	2.4	0.79
Sadness	2.07	0.83	1.83	0.8
Fear	1.61	0.79	1.5	0.61

Note: Statistically significant differences between the conditions are highlighted in bold.

asked who should try to repair the doll, them or the Outgroup puppet. Once the child had answered, or it was clear that he or she would not answer, the moderator said 'Hmm' and absent-mindedly brought out something to read, pushing the doll into the centre of the table as she did so. The next 30 s, while the moderator read, gave the child the opportunity to try to repair the doll him- or herself. During this time, the Outgroup puppet was present but inactive.

After these 30 s, the experiment was complete. The transgressor and the extra puppet now re-emerged. In order to model positive behaviour to the child and to ensure that he or she was not upset by the breaking event, the transgressor puppet apologised for breaking the doll and explained that it had been an accident. The moderator accepted his apology and said that once she explained everything to the victim, he would not be upset. The three puppets at the table then worked together with the moderator to repair the doll. The child was thanked for his or her participation and taken back to his or her classroom.

### 2.5. Coding

Children's emotional displays were coded from video by two independent raters who were unaware of the hypotheses of the study. For each child, the raters were asked to indicate on five-point scales (ranging from 1 'does not feel at all. . .' to 5 'feels extremely. . .') how guilty, embarrassed, sad and afraid the child appeared to feel. Thus high scores on this scale indicated greater displays of emotion. Guilty was defined for the raters as 'The child looks as if they think they have done something wrong and caused someone else harm'. Embarrassed was defined as 'The child looks as if they think they have done something silly that someone else might laugh at'. Sad was defined as 'The child looks as if someone said something hurtful to them or they lost their favourite toy' and afraid was defined as 'The child looks as if they have seen or experienced something scary'. The two raters' estimates of the emotions were all positively and significantly correlated (guilt:  $r(N=72)=0.526$ ,  $p<0.001$ , embarrassment:  $r(71)=0.393$ ,  $p=0.001$ , sadness:  $r(71)=0.378$ ,  $p=0.001$ , fear:  $r(71)=0.324$ ,  $p=0.006$ ). The responses of the two raters were averaged to create single scores for the four emotions.

Children's responses to the explicit questions and the repair measure were coded live by the experimenters. For the first question (about which group ought to apologise), children's responses were coded as referring to either the ingroup or the outgroup. For the second question (about who ought to repair the doll), children's responses were coded as referring either to themselves or to the Outgroup puppet. A few children failed to provide a response or provided some other response in which case their data were not included in the analyses for that item. Attempts to repair were coded if children contacted the doll and made at least one attempt to bring the two broken parts together.

For the explicit questions and the repair measure, data from 16 children were also second coded from video by a rater who was unaware of the hypotheses of the experiment. Agreement between the two coders was perfect for the two explicit questions ( $Kappas=1$ ), with only one disagreement for whether children attempted to repair the doll themselves ( $Kappa=0.875$ ).

## 3. Results

### 3.1. Nonverbal displays of emotion

Two children (both in the Ingroup condition) could not be included in these analyses because their faces were not visible on the camera, as they were obstructed by the experimental apparatus. Analyses of the remaining 72 children's nonverbal behaviour indicated that of the four negative emotions coded, children only displayed guilt differently across conditions. Specifically, children displayed significantly more signs of guilt in the Ingroup condition than in the Outgroup condition ( $t(70)=2.86$ ,  $p=0.006$ , *Cohen's d*=0.66 (see Table 2)). Children's displays of embarrassment ( $t(70)=-1.73$ ,  $p=0.09$ ), sadness ( $t(70)=1.24$ ,  $p=0.22$ ) and fear ( $t(70)=0.648$ ,  $p=0.22$ ) did not differ between conditions.

### 3.2. Responses to the explicit questions

Thirty-four children in the Ingroup condition provided an answer to the question about which group ought to apologise. Of these, 31 answered that their own group ought to apologise and 3 answered that the other group should apologise. In the Outgroup condition, 34 children provided an answer and all of them answered that the other group should apologise.

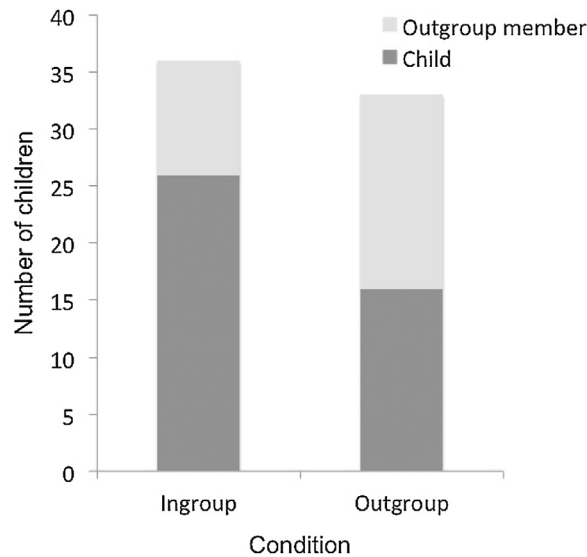


Fig. 2. Children's verbal responses to the question regarding who ought to try to repair the doll in the two conditions.

This difference between conditions is significant,  $X^2(1, N = 68) = 56.97, p < 0.001, r^2 = 0.92$ . Thus, children understood which group the transgressor belonged to and were able to answer questions about group level responsibility.

Thirty-six children in the Ingroup condition provided an answer to the question about who ought to try to repair the doll. Of these, 26 answered that they themselves should attempt to repair the doll and 10 answered that the Outgroup member should try to repair the doll. In the Outgroup condition, 33 children provided an answer to the question about who ought to try to repair the doll. Of these, 16 children answered that they themselves ought to try to repair the doll and 17 answered that the Outgroup member should try to repair the doll (see Fig. 2). This difference between conditions is significant,  $X^2(1, N = 69) = 4.07, p = 0.044, r^2 = 0.24$ . Thus, children are relatively more likely to report that they should repair the damage caused by members of their own group than the damage caused by members of other groups. Note that no child answered this question by referring to either of the groups.

### 3.3. Attempts to repair the doll

There was no difference between conditions in the number of children who attempted to repair the doll. In the Ingroup condition, 19 children attempted to repair the doll and in the Outgroup condition, 15 attempted to repair the doll,  $X^2(1, N = 74) = 0.26, p = 0.61$ .

### 3.4. Relations between the measures

In order to determine whether non-verbal displays of guilt were correlated with children's verbal responses and attempts to help, we first created an aggregate measure of children's responses to the two explicit questions and the repair measure, with each of the three measures worth 1 point. Children's scores on this aggregate measure could thus range between 0 (if they gave no responses indicating guilt) and 3 if they gave responses that indicated guilt on all three measures. (Children who failed to answer one or both of the explicit questions were not included in these analyses). Children's nonverbal displays of guilt were positively and significantly correlated with this aggregate measure,  $\rho(62) = 0.272, p = 0.033$ , suggesting that the more signs of guilt children displayed, the more they subsequently accepted responsibility. Importantly, children's nonverbal displays of embarrassment, sadness and fear did not significantly predict their aggregate scores on this measure (embarrassment:  $\rho(62) = -0.206, p = 0.108$ , sadness:  $\rho(62) = 0.048, p = 0.711$ , fear:  $\rho(62) = 0.199, p = 0.121$ ).

## 4. Discussion

This experiment was designed to investigate whether five-year-old children accept responsibility for the negative actions of their ingroup members. Results from the coding of children's nonverbal behaviour suggest that they displayed significantly more signs of guilt when a member of their own group had committed a transgression than when a member of the other group had committed a transgression. These negative emotional displays appear to be specific to guilt. Children did not differ in their displays of fear, suggesting that the differences between conditions on the other measures cannot be explained by fear of negative consequences for their own group. Nor can they be explained by sadness at the ingroup's transgression,

because displays of sadness did not differ between the conditions. Finally, displays of embarrassment were similar in the two conditions, further underlining that the manipulation specifically affected guilt rather than other negative social emotions.

Children's answers to the two explicit questions add further weight to the claim that children accept responsibility for the negative actions of their ingroup members. The first question probed which group children thought should apologise for the damage caused to the victim's valued possession. In answer to this question, almost all children said that the group whose member had caused the damage ought to apologise, suggesting that they understood which group the transgressor belonged to and were able to answer questions about group level responsibility. The second question probed whether children thought that they ought to try to repair the damage caused to the object or whether a member of the other group ought to try to repair the damage. This question asked about children's own feelings of obligation rather than those of the group more generally. In answer to this question, children were more likely to say that they themselves ought to try to repair the doll when a member of their own group had broken it. These differences were observed even though children had very little experience of the groups to which they had been assigned. Thus, although preschool-aged children likely do not yet experience collective responsibility in its adult form (Lickel et al., 2004), our results, taken together with previous research (Bennett & Sani, 2008), do suggest that the origins of this important social phenomenon are present by 5 years of age.

Further analyses showed that children's displays of guilt were positively associated with their responses on the two explicit questions and the repair measure. The more signs of guilt children displayed after the doll broke, the more signs of accepting responsibility they subsequently showed. This helps validate our coding of children's guilt displays and provides further evidence for the association between experiencing guilt and accepting responsibility for a group member's actions.

It is important to note that, whereas previous research has shown that guilt and accepting responsibility lead to increased helping behaviour in both adults and children (de Hooge et al., 2007; Ketelaar & Au, 2003; Vaish et al., *in press*), when this measure was analysed in isolation, children were no more likely to actively attempt to repair the doll when it was broken by an ingroup member. There are a number of possible reasons for this. One possibility is that there is more noise in this measure than there is in the coding of children's non-verbal behaviour and the explicit questions. Children were not specifically given permission to touch or repair the doll during the 30-s repair period, so the number of attempts to repair might have been influenced by their relative shyness or impatience with the pause in proceedings. Another possibility is that, as this measure came at the very end, some children in the Ingroup condition felt they had accepted sufficient responsibility for the harm by the time they were given the opportunity to repair the doll. Along these lines, previous research has demonstrated that once children have expressed remorse verbally or attempted to repair the harm they have caused, they subsequently engage in less prosocial behaviour towards the victim (Vaish et al., *in press*). Alternatively, children who answered that they themselves ought to try to repair the doll, as approximately half of children did in the Outgroup condition, may have felt social pressure to act in line with their earlier response. This desire to be consistent, combined with a general tendency to be helpful (Warneken & Tomasello, 2006), may have led to relatively high levels of helping in the Outgroup condition, obscuring any effect of the manipulation.

Like all studies, our work has a number of limitations. First, we presented the explicit questions and helping measure in a fixed order. It is thus possible that children's answer to the first question (about which group ought to apologise for the damage) influenced their answer to the second question (about who ought to repair the doll) by making them more likely to answer in line with their first response. It is also possible, as mentioned above, that children's answers to the two explicit questions reduced their actual tendency to try to repair the doll. In future research, it will be important to counterbalance the order of both of the verbal questions and the repair measure in order to ensure that they do not differentially influence each other.

A second limitation relates to how we measured children's nonverbal displays of guilt and other negative emotions. Research on social emotions has not yet established specific behavioural markers of guilt (Keltner & Buswell, 1996). As a result, we asked two independent raters for their overall impression of whether children appeared to feel guilt. This technique has the advantage that it taps into how children's emotional responses might be perceived by others. It is not without its weaknesses however. Due to inevitable individual differences in emotion perception, the inter-rater reliability between our two coders was relatively low and we cannot determine which cues the raters were using to make their decisions. In future research, it will be important to develop more objective ways of measuring guilt, perhaps incorporating physiological measures such as pupil dilation in order to obtain more reliable information (see, e.g., Hepach, Vaish, & Tomasello, *in press*).

Nevertheless, this work opens up a number of interesting avenues for future research. First, it would be interesting to investigate the relationship between the acceptance of collective responsibility and intergroup bias. Previous research has shown that young children prefer members of their own group to members of other groups, recall relatively more positive information about members of their own group, and interpret their ambiguous actions in a more positive light (e.g., Dunham, Baron, & Banaji, 2008; Dunham et al., 2011; Kinzler et al., 2007). Further research could investigate the situations in which children excuse, or seek to minimise, the negative actions of their own group and the situations in which they accept responsibility for those negative actions. Related to this, it would be interesting to investigate how collective responsibility relates to identification. The acceptance of collective responsibility has been taken as evidence of young children's subjective identification with their social groups (Bennett & Sani, 2008; Tomasello et al., 2012). However, the relationship between the strength of adults' identification and their acceptance of collective responsibility is complex (Klein, Licata, & Pierucci, 2011). It would be interesting to look at how the strength of children's identification predicts their willingness to accept collective responsibility. Finally, it would be interesting to investigate the origins of other collective emotions. Just as children's connections to their group lead them to accept collective responsibility, and potentially experience guilt, for an

ingroup member's negative actions, it may lead children to take some credit for, and even feel pride in, an ingroup member's positive actions. Whether positive collective emotions are present in early childhood, and what social functions they might serve, are fascinating questions for future work.

Overall, these findings add to a growing body of research suggesting that the group exerts a powerful influence over cognition and behaviour from early in development. Even infants prefer members of their own groups to members of other groups (Kinzler et al., 2007) and, later in development, this influences whom children choose to interact with and learn from (e.g., Kinzler, Corriveau, & Harris, 2011). Other research has demonstrated that, at least by the age of five years, children categorise themselves as belonging to particular groups and that this has consequences for their self-descriptions (Sani & Bennett, 2009). Here, we extend this literature by demonstrating that children show the origins of collective responsibility. In doing so, we shed fresh light on one of the group-level behaviours that is integral to human social life.

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