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## Children trust people who lie to benefit others



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### ABSTRACT

The current research examined whether children consider who benefits from lies when judging the trustworthiness of liars. Across two studies (total  $N = 214$ ), 6- to 11-year-olds trusted individuals who lied to promote the interests of others, but not those who lied to promote their own interests. In contrast, children trusted individuals who told the truth regardless of who benefited. Trust in individuals who lied to promote the interests of others was evident even in the absence of moral approval for their actions. These results demonstrate that children take into account both the truth value of a speaker's statements and who benefits when assessing trustworthiness and that moral approval is not a prerequisite for trust.

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### Introduction

To avoid being misinformed and manipulated, children must learn to judge whether the individuals they interact with can be trusted. Over the course of the preschool years, they come to appreciate that knowledge has implications for trust (Lane, Wellman, & Gelman, 2013), and they take into account a range of cues relevant to this assessment such as whether the individuals in question have good track records of accuracy (Birch, Vauthier, & Bloom, 2008; Corriveau & Harris, 2009; Harris, 2007; Jaswal & Neely, 2006; Koenig & Harris, 2005; Koenig & Woodward, 2010) and whether they express confidence (Birch, Akmal, & Frampton, 2009; Sabbagh & Baldwin, 2001). During the preschool years, children also come to appreciate that even when individuals know what they are talking about, they

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might not honestly communicate what they know (Heyman, Sritanyaratana, & Vanderbilt, 2013; Lane et al., 2013; Mascaro & Sperber, 2009; Vanderbilt, Liu, & Heyman, 2011). The current research examined the nature of this honesty-relevant skepticism once it is in place by examining whether it is applied differentially depending on who benefits from the lie.

Prior research suggests that children first begin to realize that lying has implications for trust by 3 years of age (Lane et al., 2013); at this age, they already understand that it is preferable to ask someone who is honest about the hidden contents of a box than to ask someone who is dishonest. This understanding becomes more robust between 3 and 5 years of age (Heyman et al., 2013; Mascaro & Sperber, 2009; Vanderbilt et al., 2011), and by 5 years they show selective trust even when asked to make independent evaluations of individual informants rather than relative judgments about which of two individuals is more trustworthy (Vanderbilt et al., 2011).

Although there has been almost no research examining whether different types of lies have different implications for trust, it is clear that by early elementary school children are at least capable of making distinctions between different types of lies. Most relevant to the current research is evidence that by 6 or 7 years of age children consider lies to avoid getting into trouble more negatively than they consider lies to protect others' feelings (Bussey, 1999; Heyman, Sweet, & Lee, 2009; Peterson, Peterson, & Seeto, 1983). For example, in Heyman et al. (2009), participants in all age groups tested (7-, 9-, and 11-year-olds) rated a protagonist who falsely denied having damaged a book more negatively than one who falsely claimed to like a gift. This study also showed that children in all of these age groups viewed prosocial goals as the primary motivation of lies that benefit others and self-interest goals as the primary motivation of lies that benefit self.

In one study that did look at the implications of different lies for trust, Xu and colleagues (2013) asked 7-, 9-, and 11-year-olds to reason about characters who told different kinds of lies. One character told lies that were likely to protect the feelings of the recipient (e.g., falsely claiming to think that the recipient's shoes looked great), and the other told lies that were likely to hurt the feelings of the recipient (falsely claiming to think that the recipient's coat was ugly to hurt the recipient's feelings). Findings indicated that participants' ratings of the benevolence of these characters mediated the influence of their honesty judgments on their trust evaluations, suggesting that the negative impact of dishonest statements on trust may be buffered by the way the motivations of the lie-teller are perceived. Additional research on honesty and trust suggests that 6- and 7-year-olds consider whether bad information was provided with deceptive intent when deciding whether to trust the individual who provided the information (Liu, Vanderbilt, & Heyman, 2013). This suggests early sensitivity to intent information even when it is not confounded with outcome information.

In the current research, we focused on a different question—whether children make a distinction between lies that promote their own interest and lies told to promote the interests of others when evaluating trustworthiness. This question is important because trust judgments have broad implications for children's social relationships and for their vulnerability to being misinformed and manipulated (Heyman, 2008). Consequently, it would benefit individuals interested in the welfare of children to understand the nature of these vulnerabilities in order to find optimal ways to protect them. Addressing this question is also important in assessing the potential psychological and social consequences of the lies to which children are exposed (Hays & Carver, 2014; Heyman, Luu, & Lee, 2009).

The question of whether children view different types of lies as having different implications for trust has important theoretical implications because it helps to inform debates about the extent to which children are merely computing records of prior accuracy when assessing whether specific individuals are trustworthy or are engaging in more theory-driven reasoning processes (Liu et al., 2013; Nurmsoo & Robinson, 2009a, 2009b). Previous research on this topic suggests that when assessing the trustworthiness of individuals who provide inaccurate information, children can sometimes take into account the reason why inaccurate information was given. We build on this research by addressing whether children still take into account the reason why individuals give inaccurate information even when it is clear that the individuals in question are lying.

We asked the question of whether children use information about who benefits from a lie when evaluating the trustworthiness of the liar, both with reference to statements about committing good deeds and with reference to statements about committing bad deeds, because it is possible that children have different expectations about reporting on these types of behaviors. For comparison

purposes, we also examined trust in individuals who provided truthful statements to promote their own interests or to promote the interests of others. This allowed us to determine whether considerations of who benefits from a lie might differ from considerations from the truth. Prior research suggests that children often focus on different factors when evaluating lies versus true statements (Heyman et al., 2009).

We tested a group of first graders (6- and 7-year-olds), a group of third graders (8- and 9-year-olds), and a group of fifth graders (10- and 11-year-olds). The youngest group was selected because this is an age when children have a firm understanding that lying has implications for trust (Heyman et al., 2013; Lane et al., 2013; Mascaro & Sperber, 2009; Vanderbilt et al., 2011) and when the basic ability to differentiate between different kinds of lies has been firmly established (Bussey, 1999; Heyman et al., 2009; Peterson et al., 1983). The older groups were included because previous studies have shown that children often show age-related changes in the ways they evaluate different kinds of lies during the late elementary school years (Fu, Xu, Cameron, Heyman, & Lee, 2007).

In most research examining children's reasoning about different types of lies, the lies in question vary along several dimensions such as the extent to which content of the lie is about a serious matter with moral implications. In the current research, we developed a new paradigm to much more tightly control for these kinds of issues by making all lies about the same basic issue of indicating who is responsible for an act in question.

We addressed our research question in two studies where participants responded to four scenarios in which the protagonist or another individual performs a good or bad deed and in which the protagonist tells the truth about it (i.e., accurately reports on which of the two individuals was responsible for the deed) or lies about it (i.e., inaccurately reports on which of the two individuals was responsible for the deed). In Study 1, we did this by manipulating whether the truth value of the statement (i.e., whether it was the truth or a lie) and who benefited from the statement (i.e., the protagonist or the other individual) as within-participants factors and the nature of the deed in question (i.e., whether it was a good or bad deed) as a between-participants factor.

In Study 2, we did not include any between-participants stories and instead focused on the four stories of greatest theoretical interest in examining how children weighed truth value of the statement and who benefited from the statement. Specifically, we examined the cases in which these factors were pitted against each other (i.e., lies benefiting others versus truth benefiting self for both good deeds and bad deeds) in order to assess their relative importance. The primary goal of including this second study was to ensure that key results in Study 1 would replicate. In addition, we wanted to assess the question of how children weigh the relative importance of truthfulness versus benefit in a more targeted way.

## Study 1

### *Method*

#### *Participants*

Participants were 124 elementary school children (63 boys in total: 19 boys in first grade, 21 boys in third grade, and 23 boys in fifth grade) from a public school in Jinhua, a Chinese city with approximately 5 million people. This sample included a group of first graders ( $n = 40$ , mean age = 7.1 years, range = 6.6–7.9), a group of third graders ( $n = 45$ , mean age = 9.0 years, range = 8.6–10.1), and a group of fifth graders ( $n = 39$ , mean age = 11.1 years, range = 10.6–12.7). The sample was 100% Han Chinese. The children were from families of all walks of life, including civil servants, merchants, and farmers. The families of most participants were from lower middle-class or middle-class backgrounds.

#### *Procedure*

In individual interviews at their schools, an experimenter read each child a set of four stories that were presented in one of four possible Latin square orders. The gender of the protagonists was the same in all four stories for each participant and was counterbalanced between participants. The stories varied in terms of the truth value of a protagonist's response and whether the statement promoted the protagonist's own interests or the interests of others. Whether the story content focused on a good or

bad deed was manipulated as a between-participants factor. All bad deed stories were about a protagonist breaking something in the classroom, and all good deed stories were about a protagonist helping in the classroom. As an example, the bad deed story in which a protagonist tells a lie to benefit others is as follows:

One day, Lili and Honghong were playing in the classroom, and Lili accidentally broke a vase. Their teacher came in and was very angry. She said that she would punish whoever broke the vase, and she asked who did it. *Honghong told the teacher that she was the one who broke the vase even though Lili really did it.*

A complete list of all stories is presented in the [Appendix](#).

After each story, participants were given a series of questions. They were first asked a pair of manipulation check questions to ensure that they had understood and remembered the stories. Specifically, they were asked to identify which character had done the good or bad deed (e.g., who broke the vase) and what the teacher had been told about it (e.g., who did Honghong say broke the vase). When participants got either question wrong, the story was repeated. The average number of times each story was repeated was .21 for first graders, .11 for third graders, and .07 for fifth graders. An additional 3 participants (2 first graders and 1 third grader) were dropped from the study for not responding to the manipulation check items.

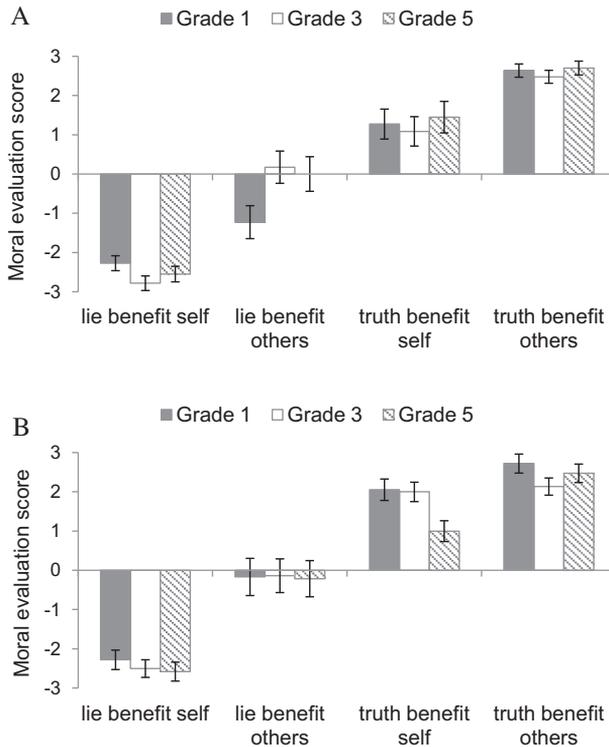
Next, participants were asked a moral evaluation question of the protagonist's statement in which they were asked whether they thought the response was "good or bad" (e.g., is it good for Honghong to say so) using a 7-point scale that has been used in prior research with children of similar ages (e.g., [Fu et al., 2007](#)). The scale contained the following response options: *very, very good* (represented by three stars, scored as 3), *very good* (represented by two stars, scored as 2), *good* (represented by one star, scored as 1), *neither good nor bad* (represented by a blank circle, scored as 0), *bad* (represented by one X, scored as -1), *very bad* (represented by two Xs, scored as -2), and *very, very bad* (represented by three Xs, scored as -3). Participants were then asked to explain why the protagonist said what she did (e.g., Lili broke the vase, but Honghong told the teacher that she was the one who broke the vase. Why did Honghong say this?). Next, participants responded to trust items on a 5-point scale (*definitely yes, maybe yes, not sure, maybe no, or definitely no*). On one item they were asked, "If you asked Honghong to keep your secret, do you think she would do it?" On another they were asked, "If Honghong promised to help you, do you think she would do it?"

## Results

### Moral evaluations

Moral evaluation scores, which reflect participants' evaluations about the extent to which protagonists' responses were good or bad, are shown in [Fig. 1](#) for both bad deed and good deed stories. Overall, the patterns were similar for both types of stories, with participants giving favorable ratings for telling the truth regardless of who benefits, negative ratings for lying to benefit self, and relatively neutral ratings for lying to benefit others. All ratings differed significantly from a neutral rating of 0 ( $p = .01$  for first graders in the lying to benefit others condition of bad deed stories, and the other  $ps < .01$ ) except that for bad deed stories ratings of third graders and fifth graders did not differ significantly from 0 ( $p = .67$  and  $p = 1.00$ , respectively) in the lying to benefit others condition. In addition, for good deed stories, ratings in all three age groups did not differ significantly from 0 in the lying to benefit others condition ( $p = .79$ ,  $p = .72$ , and  $p = .59$  for the first graders, third graders, and fifth graders, respectively).

Evaluations in response to both types of stories were analyzed for effects of truth value, benefit, and grade with a 2 (Truth Value: lie or truth)  $\times$  2 (Benefit: self or others)  $\times$  3 (Grade: 1, 3, or 5) repeated-measures analysis of variance (ANOVA). Both ANOVAs showed a main effect of truth value, with truth stories being rated more positively than lie stories,  $F(1, 62) = 227.55$ ,  $p < .001$ , partial  $\eta^2 = .79$  for bad deed stories and  $F(1, 56) = 312.50$ ,  $p < .001$ , partial  $\eta^2 = .85$  for good deed stories. Both also showed an effect of benefit, with statements to benefit others being rated more positively than statements to benefit self,  $F(1, 62) = 91.13$ ,  $p < .001$ , partial  $\eta^2 = .60$  for bad deed stories and  $F(1, 56) = 72.33$ ,  $p < .001$ , partial  $\eta^2 = .56$  for good deed stories. The interaction between truth value and benefit was also



**Fig. 1.** Participants' evaluation about the extent to which protagonists' responses were good or bad for bad deed stories (A) and good deed stories (B). Error bars represent the standard errors for each condition.

significant for both stories, with the effect of benefit being stronger in lie stories than in truth stories,  $F(1, 62) = 7.16, p = .01$ , partial  $\eta^2 = .10$  for bad deed stories and  $F(1, 56) = 26.20, p < .001$ , partial  $\eta^2 = .32$  for good deed stories.

In addition to the common effects across both story types, there was also an additional interaction among truth value, benefit, and grade on the bad deed stories,  $F(2, 62) = 3.51, p = .04$ , partial  $\eta^2 = .10$ . Follow-up simple effect tests and LSD (least significant difference) tests showed that the only condition with a significant grade difference was lies to benefit others,  $F(2, 62) = 3.30, p = .04$ ; the youngest group rated these lies as bad, and the older two groups rated them as neutral.

**Explanations of moral evaluations.** Explanations were coded into categories of veracity, impact on self, and impact on others based on the coding scheme developed by Heyman et al. (2009). Veracity included responses referring to telling the truth, telling a lie, and the factual evidence for the claim. Impact on self included responses referring to how the statement would affect the protagonist. Impact on others included responses referring to the impact on individuals other than protagonist. Responses that did not fit any of these categories were put into an "other" category.

Frequencies of children's coded responses are shown in Table 1. Coding consistencies of the two independent coders for each type of story were 91.94, 83.87, 81.45, and 85.48%, respectively, and Cohen's kappas were .57, .62, .70, and .51, respectively. The "other" category is listed for descriptive purposes and was not included in the analyses. Chi-square analyses conducted for each of the four story types showed that observed frequencies in the three categories differed significantly in all stories,  $\chi^2(2) = 182.57, p < .001$ ;  $\chi^2(2) = 116.42, p < .001$ ;  $\chi^2(2) = 82.16, p < .001$ ; and  $\chi^2(2) = 173.85, p < .001$ , respectively.

**Table 1**  
Coded responses to explanations of moral evaluations.

	Lie benefit self	Lie benefit others	Truth benefit self	Truth benefit others
Veracity	7 (5.6)	6 (4.8)	83 (67.5)	108 (87.1)
Impact on self	111 (89.5)	16 (12.9)	22 (17.9)	3 (2.4)
Impact on others	4 (3.2)	92 (74.2)	9 (7.3)	9 (7.3)
Other	2 (1.6)	10 (8.1)	9 (7.3)	4 (3.2)
Total	124	124	123	124

Note. Percentages are in parentheses.

Additional chi-square analyses revealed no significant grade effects. As can be seen from Table 1, when protagonists told lies benefiting themselves, most of the children (89.5%) referred to the impact on self. When protagonists told lies benefiting others, most of the children (74.2%) referred to the impact on others. When protagonists told the truth, most of the children (67.5% in the truth to benefit self story and 87.1% in the truth to benefit others story) referred to veracity.

Because we were interested in whether participants attended to the inferred mental states of characters when reasoning about the lie conditions, we also examined explicit references to mental state “impact on self” and “impact on others” responses. All of the clear references had to do with desires or emotions (e.g., she was afraid her teacher would punish her, he wants to get praise from his teacher, he does not want to express himself too much). On “impact on self” responses we found that more than two thirds included such terms (67% for 7-year-olds, 77% for 9-year-olds, and 73% for 11-year-olds), and on “impact on other” responses we found that roughly half included such terms (60% for 7-year-olds, 48% for 9-year-olds, and 44% for 11-year-olds).

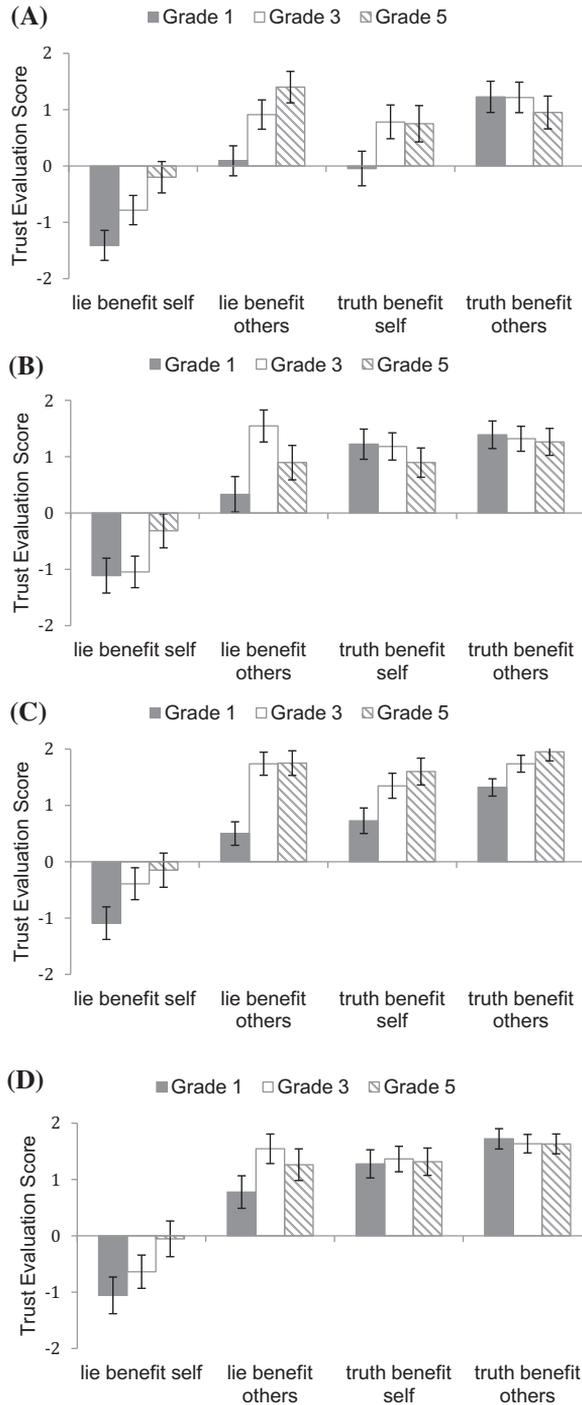
#### Trust evaluations

Scores for the two trust measures are shown in Fig. 2 for both bad deed and good deed stories. Overall, the patterns were similar for both types of measures and for both good deed and bad deed stories and parallel the moral evaluation scores, with one important exception: Participants trusted well-intentioned liars even though they did not express moral approval for their lying behavior.

*Secret keeping.* A 2 (Truth Value: lie or truth)  $\times$  2 (Benefit: self or others)  $\times$  3 (Grade: 1, 3, or 5) repeated-measures ANOVA on children’s secret keeping ratings for both bad deed and good deed stories showed a significant main effect of truth value, with individuals making truthful statements being rated more favorably than individuals lying,  $F(1, 62) = 20.08, p < .001$ , partial  $\eta^2 = .25$  for bad deed stories and  $F(1, 56) = 44.58, p < .001$ , partial  $\eta^2 = .44$  for good deed stories. There was also a significant effect of benefit on both stories, with individuals making statements to benefit others being rated more positively than those making statements to benefit themselves,  $F(1, 62) = 62.73, p < .001$ , partial  $\eta^2 = .50$  for bad deed stories and  $F(1, 56) = 70.40, p < .001$ , partial  $\eta^2 = .56$  for good deed stories. The interaction between truth value and benefit was also significant for both stories, with the effect of benefit being stronger in lie stories than in truth stories,  $F(1, 62) = 15.44, p < .001$ , partial  $\eta^2 = .20$  for bad deed stories and  $F(1, 56) = 41.54, p < .001$ , partial  $\eta^2 = .43$  for good deed stories.

In addition to the common effects on both stories, there was a main effect of grade on the bad deed story, with the youngest age group giving the lowest ratings,  $F(2, 62) = 5.36, p = .01$ , partial  $\eta^2 = .15$ , and there was an interaction among truth value, benefit, and grade on the good deed story,  $F(2, 56) = 4.40, p = .02$ , partial  $\eta^2 = .14$ . Follow-up simple effect tests and LSD tests showed that the only condition with a significant grade difference was the lies to benefit others condition, where first graders were less trusting than third graders ( $p = .01$ ).

*Promise keeping.* The same analyses on promise keeping measures found that the effects seen on both secret keeping stories also extended to both promise keeping stories, with a main effect of truth value,  $F(1, 62) = 76.81, p < .001$ , partial  $\eta^2 = .55$  for bad deed stories and  $F(1, 56) = 51.24, p < .001$ , partial  $\eta^2 = .48$  for good deed stories; a main effect of benefit,  $F(1, 62) = 83.39, p < .001$ , partial  $\eta^2 = .57$  for



**Fig. 2.** Participants' trust evaluations on the secret keeping measure for bad deed stories (A) and good deed stories (B) and on the promise keeping measure for bad deed stories (C) and good deed stories (D). Error bars represent the standard errors for each condition.

bad deed stories and  $F(1, 56) = 64.32, p < .001$ , partial  $\eta^2 = .54$  for good deed stories; and an interaction between truth value and benefit,  $F(1, 62) = 30.70, p < .001$ , partial  $\eta^2 = .33$  for bad deed stories and  $F(1, 56) = 37.39, p < .001$ , partial  $\eta^2 = .40$  for good deed stories.

In addition to the common effects on both stories, there was a main effect of grade on the bad deed story,  $F(2, 62) = 14.82, p < .001$ , partial  $\eta^2 = .32$ , with the youngest age group giving the lowest ratings.

### Discussion

Of central theoretical interest was the question of whether children would consider the motives behind an individual's truthful or untruthful statement, in addition to its veracity, when assessing trustworthiness. We found clear evidence that motives are indeed considered and that it made a much bigger difference when children were reasoning about lies than about the truth. Individuals who lied to benefit others were considered trustworthy, and individuals who lied to benefit themselves were considered untrustworthy. Individuals who told the truth were seen as trustworthy regardless of who benefited. These patterns were evident regardless of whether statements referred to good deeds or bad deeds. The patterns were also fairly consistent across the age groups, although there was some evidence that young children were less likely than older children to perceive those who lie to benefit others as trustworthy.

The effects seen for trust measures were generally consistent with those seen for moral evaluations, with one important exception: Even though children perceived those who lie to benefit others as trustworthy, they did not make positive moral evaluations of the behavior of those individuals. Thus, it appears that even though children do not endorse the act of lying to benefit others, they are still willing to trust individuals who do so.

### Study 2

The primary goal of Study 2 was to examine whether the effect of key theoretical interest—children's trust in well-intentioned liars—would replicate. In Study 2, we looked at this issue with a simpler study design, comparing only the cases in Study 1 where truth value was pitted against intentions (i.e., lying with good intentions vs. truth-telling with bad intentions). Doing so also allowed us to include two exemplars of key theoretical interest (i.e., lying with good intentions) against two parallel control conditions in a within-participants design. This allowed us to test whether truth value necessarily trumps intentions in children's trust assessments.

### Method

#### Participants

Participants were 90 elementary school children (45 boys in total: 16 boys in first grade, 13 boys in third grade, and 16 boys in fifth grade) from schools in close proximity to those tested in Study 1. This sample included a group of first graders ( $n = 31$ , mean age = 7.2 years, range = 6.7–7.7), a group of third graders ( $n = 27$ , mean age = 9.3 years, range = 8.7–10.3), and a group of fifth graders ( $n = 32$ , mean age = 11.2 years, range = 10.5–12.2).

#### Procedure

The procedure was identical to the one used in Study 1 with a few exceptions. First, only the two lie to benefit others stories and the two truth to benefit self stories were included, and the new design included both whether the benefit was to self or others and whether the deed was good or bad as within-participants factors. Second, the stories were modified so that the teacher did not indicate that any reward or punishment would result. We removed this reference because we wanted to make sure that results were not dependent on any implications of these consequences. Third, we cut down on the number of measures, including only the manipulation checks, the moral evaluation measure, and one measure of trust (promise keeping).

As in Study 1, when participants got either manipulation check question wrong, the story was repeated. The average numbers of times each story was repeated were .24 for first graders, .11 for third graders, and .11 for fifth graders.

## Results

### Moral evaluations

Moral evaluation scores are shown in Fig. 3. Overall, lies to benefit others were judged negatively and truths to benefit self were viewed favorably. Ratings were significantly different from 0 only for fifth graders on the lie bad deed story ( $p < .001$ ), third graders and fifth graders on the truth bad deed story ( $p = .002$  and  $p < .001$ , respectively), and all three grades on the truth good deed story ( $ps < .001$ ).

We conducted a 2 (Truth Value: lie or truth)  $\times$  (Deed Type: bad or good)  $\times$  3 (Grade: 1, 3, or 5) repeated-measures ANOVA on these scores, with truth value and deed type as within-participants factors and grade as a between-participants factor. This ANOVA showed a main effect of truth value,  $F(1, 87) = 68.76$ ,  $p < .001$ , partial  $\eta^2 = .44$ , with truth stories being rated more positively than lie stories. The only other significant effect was an interaction between truth value and grade,  $F(2, 87) = 3.18$ ,  $p = .05$ , partial  $\eta^2 = .07$ . Follow-up simple effect tests and LSD tests showed that the only condition with a significant grade difference was telling the truth to benefit self; fifth graders rated this statement more favorably than both first graders ( $p = .01$ ) and third graders ( $p = .04$ ).

### Trust evaluations

Scores for the trust measure are shown in Fig. 4 for both bad deed and good deed stories. Overall, participants reported trusting both individuals who tell the truth to benefit self favorably ( $ps < .01$  from 0 with an exception that third graders showed no favor for truth to benefit self in bad deed stories,  $p = .13$ ) and individuals who lie to benefit others ( $ps < .01$ ).

We conducted a 2 (Truth Value: lie or truth)  $\times$  2 (Deed Type: bad or good)  $\times$  3 (Grade: 1, 3, or 5) repeated-measures ANOVA on these scores, with truth value and deed type as within-participants factors and grade as a between-participants factor. The only significant effects were a main effect of deed type,  $F(1, 86) = 8.08$ ,  $p = .01$ , partial  $\eta^2 = .09$ , with participants reporting greater trust of protagonists in good deed stories, and an interaction between truth value and grade,  $F(2, 86) = 5.10$ ,  $p = .01$ , partial  $\eta^2 = .11$ . Follow-up simple effect tests and LSD tests indicated that on the lie to benefit others stories, third graders trusted protagonists more than first graders ( $p = .04$ ), which was the reverse pattern observed in response to the truth to benefit self stories, where first graders trusted protagonists more than third graders ( $p = .02$ ).

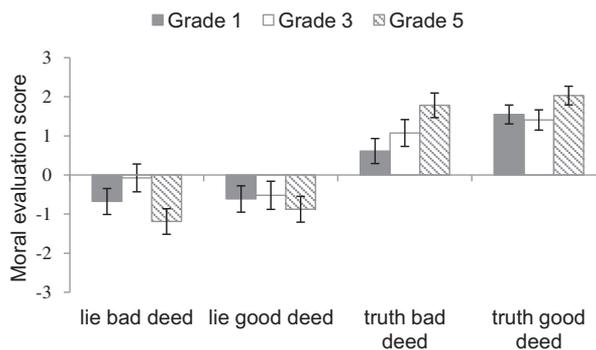


Fig. 3. Participants' evaluation about the extent to which protagonists' responses were good or bad for good and bad deed stories in which protagonists either lied or told the truth. Error bars represent the standard errors for each condition.



**Fig. 4.** Participants' trust evaluations of protagonists on the promise keeping measure for good and bad deed stories in which protagonists either lied or told the truth. Error bars represent the standard errors for each condition.

### Discussion

The key result in Study 1 was replicated in Study 2; participants found individuals who lied to benefit others to be trustworthy even though they did not make positive moral evaluations of their actions. In addition, the results showed that the level of trust individuals place in liars whose statements benefit others is comparable to the level of trust they place in truth-tellers whose statements benefit themselves. This suggests similar weighting of these dimensions, at least as operationalized in the current research.

### General discussion

In two studies, we tested the hypothesis that elementary-age children would trust liars whose statements benefited others. We found strong evidence in support of this hypothesis. In Study 1, participants reported that they would trust these liars and that they would distrust liars whose statements benefited themselves. Study 2 provided further evidence that participants trust liars whose statements benefited others. In addition, by pitting the dimensions of truth value and benefit against each other in a targeted way, we showed that trust levels for liars whose statements benefited others are roughly equivalent to those for truth-tellers whose statements benefited themselves. This provides the first evidence that even after children understand that lying has negative implications for trust, they do not always assume that liars are less trustworthy than truth-tellers. These results also contribute to a growing body of literature suggesting that children are capable of engaging in theory-driven reasoning processes when making trust judgments (Birch et al., 2009; Einav & Robinson, 2011; Jaswal & Malone, 2007; Nurmsoo & Robinson, 2009a; Sabbagh & Baldwin, 2001; see Mills, 2013, for a review of these findings) and extend prior work by demonstrating that children still take into account the reason why individuals provide inaccurate information even when it is clear that the individuals in question are lying.

Although we found sensitivity to lie type in children's trust judgments in a tightly controlled experimental context, we cannot definitely say whether this sensitivity resulted from a focus on the consequences for the recipient, a focus on the intention of the protagonist, or some combination of the two. However, children's open-ended responses, in which many focused on the desires or emotions of protagonists, suggest that considerations of mental states did play a role in children's evaluations.

The current studies also demonstrate that children are capable of trusting individuals even when they do not approve of their actions. This was evident in both studies; participants consistently reported that they would trust liars whose statements benefited others while evaluating their behavior in the negative to neutral range. This suggests that children do not necessarily need to approve of what individuals do in order to trust them. Further research will be needed to pinpoint whether this result is best explained in terms of the distinction between trust judgments and moral evaluations or in terms of the distinction between judgments of specific behaviors and judgments of individuals who engage in those specific behaviors.

The current results also provide evidence that the interests served by a statement are more central in reasoning about lies than about the truth. In Study 1, where truth value and benefit were manipulated factorially, there was an interaction between these factors, indicating that who benefited mattered more when statements were lies. This was observed on measures of both moral evaluation and trust evaluation. Further support that the interests served by a statement are more central in reasoning about lies than about the truth can be found in children's explanations of their moral evaluations in Study 1. On this measure, children focused on veracity when asked about individuals who told the truth, but they focused on who would benefit when asked about individuals who lied (see also Heyman et al., 2009).

A related finding was that children rated truth-telling in a consistently positive manner even when it served the protagonist's own interests. One reason for this may be the situational context in which statements were made, where protagonists were responding to direct questions from a teacher. If students had instead volunteered this information, it may have been considered tattling, which is viewed negatively by children once they reach late elementary school age (Loke, Heyman, Forgie, McCarthy, & Lee, 2011).

We also found evidence of age-related effects on trust evaluations. Although such effects were not always present, when they were observed they tended to show that older children put relatively more emphasis on who would benefit from statements. These effects were observed both with reference to bad deeds, where older children were relatively more trusting of individuals who lied to protect the interests of others, and with reference to good deeds, where older children were relatively less trusting of individuals who told the truth to promote their own interests.

These age-related changes with reference to trust evaluations of individuals who report on good deeds are generally consistent with previous work suggesting that as children get older, there can be a greater social cost to calling attention to their own accomplishments (Banerjee, 2000; Watling & Banerjee, 2007). These costs are likely to be particularly high in East Asia, where the current research was conducted, given the strong cultural focus on modesty norms (Lee, Cameron, Xu, Fu, & Board, 1997; Heine, Takata, & Lehman, 2000; Heyman, Fu, & Lee, 2008).

The current research points to the importance of making distinctions between different types of lies when investigating the psychological and social consequences of lies to which children are exposed. For example, previous research suggests that when individuals tell self-interested lies, young children are more likely to lie to individuals who tell self-interested lies to them (Hays & Carver, 2014), and the current research suggests that it will be important to look at lies told to benefit others before assuming that these results generalize to these cases. More generally, the work points to the need to look at whether children's observed responses to lies result from the fact that someone has intentionally provided inaccurate information or from the negative social consequences that often accompany such intentional miscommunication.

In summary, the current research suggests that by the time children reach roughly 7 years of age, they make use of information about who benefits from lies when assessing trust and do so more when considering individuals who lie than when considering those who tell the truth. The current findings also show a dissociation between moral and trust evaluations when it comes to assessing individuals who tell lies that benefit others. Taken together, these results provide evidence that children assess trust by taking into account not only the act of lying itself but also the reason behind it.

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## **Appendix stories**

### *Bad deed lie to benefit self*

One day, Yuanyuan and Tingting were playing in the classroom, and Yuanyuan accidentally broke the picture frame. Their teacher came in and was very angry. She said that she would punish whoever

broke the picture frame, and she asked who did it. Yuanyuan told the teacher that Tingting was the one who broke the picture frame even though Yuanyuan really did it.

*Bad deed lie to benefit other*

One day, Lili and Honghong were playing in the classroom, and Lili accidentally broke a vase. Their teacher came in and was very angry. She said that she would punish whoever broke the vase, and she asked who did it. Honghong told the teacher that she was the one who broke the vase even though Lili really did it.

*Bad deed truth to benefit self*

One day, Meimei and Lulu were playing in the classroom, and Meimei accidentally broke the clock. Their teacher came in and was very angry. She said that she would punish whoever broke the clock, and she asked who did it. Lulu told the teacher that Meimei was the one who broke the clock.

*Bad deed truth to benefit other*

One day, Juanjuan and Lanlan were playing in the classroom, and Juanjuan accidentally broke a mirror. Their teacher came in and was very angry. She said that she would punish whoever broke the mirror, and she asked who did it. Juanjuan told the teacher that she was the one who broke the mirror.

*Good deed lie to benefit self*

One day, Lili and Honghong were in the classroom. Lili noticed that the desks were a mess, and she organized all of them herself. Their teacher came in and was very happy. She said that she would reward whoever organized the desks, and she asked who did it. Honghong told the teacher that she was the one who organized the desks even though Lili really did it.

*Good deed lie to benefit other*

One day, Yuanyuan and Tingting were in the classroom. Yuanyuan noticed that rain was pouring down outside, and she closed all the windows herself. Their teacher came in and was very happy. She said that she would reward whoever closed the windows, and she asked who did it. Yuanyuan told the teacher that Tingting was the one who closed the windows even though Yuanyuan really did it.

*Good deed truth to benefit other*

One day, Meimei and Lulu were in the classroom. Meimei noticed that there were scraps of paper on the floor, and she picked all of them up herself. Their teacher came in and was very happy. She said that she would reward whoever picked up the paper scraps, and she asked who did it. Lulu told the teacher that Meimei was the one who picked up the scraps of paper.

*Good deed truth to benefit self*

One day, Juanjuan and Lanlan were in the classroom. Juanjuan noticed that the blackboard was very dirty, and she cleaned it all up herself. Their teacher came in and was very happy. She said that she would reward whoever cleaned the blackboard, and she asked who did it. Juanjuan told the teacher that she was the one who cleaned the blackboard.

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