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## Original Articles

# Can only one person be right? The development of objectivism and social preferences regarding widely shared and controversial moral beliefs

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## ABSTRACT

Prior work has established that children and adults distinguish moral norms (e.g., hitting is wrong) from conventional norms (e.g., wearing pajamas to school is wrong). Specifically, moral norms are generally perceived as universal across time and space, similar to objective facts. We examined preschoolers' and adults' perceptions of moral beliefs alongside facts and opinions by asking whether only one person could be right in the case of disagreements. We also compared perceptions of widely shared moral beliefs (e.g., whether it is better to pull someone's hair or share with someone) and controversial moral beliefs (e.g., whether it is better to help someone with a project or make cookies for someone). In Studies 1 and 2, preschoolers and adults were more likely to judge that only one person could be right in the case of widely shared versus controversial moral beliefs, treating the former as more objective or fact-like. Children were also more likely than adults to say that only one person could be right in a moral disagreement. Study 2 additionally revealed that adults were more likely than children to report preferring individuals who shared their controversial moral beliefs. Study 3 replicated these patterns using a different sample of widely shared beliefs (e.g., whether it is okay to mock a poor classmate) and controversial moral beliefs (e.g., whether it is okay to tell small, prosocial lies). While some aspects of moral cognition may depend on abundant social learning and cognitive development, the perception that disagreements about widely shared moral beliefs have only one right answer while disagreements about controversial moral beliefs do not emerge relatively early. We discuss implications for moral learning and social preferences.

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## 1. Introduction

From early childhood on, social interactions are rife with moral disagreement. Preschoolers fight about whether it is okay or not okay for one child to take a toy from another (Shantz, 1987), older children disagree about the ethics of excluding peers (Killen, 2007), and adults diverge in their stances on issues such as abortion and the death penalty (Skitka, Bauman, & Sargis, 2005). The current work unites approaches from experimental philosophy, social psychology, and developmental psychology to investigate moral objectivism—the perception that moral statements, like factual statements, can be objectively true or false and that therefore if two people disagree only one person can be right (e.g.,

Sayre-McCord, 1986). The present studies address three questions: (1) Are individuals more likely to report that, in the case of disagreements about widely shared (versus controversial) moral beliefs, only one person can be right? (2) Are individuals more likely to prefer other people who share their widely shared (versus controversial) moral beliefs? (3) How might these behavioral patterns change across development, with social experience and moral learning (i.e., learning about local moral rules and common moral beliefs)?

## 1.1. The relationship between epistemology and moral objectivism

For centuries, moral objectivism has been the purview of philosophers, who have debated the extent to which moral statements—like factual statements—can be true or false (Harman, 1975; Kant, 1786/1959; Nagel, 1970; Prinz, 2007). Within psychology, many experiments relevant to the study of moral objectivism have targeted epistemological development, or

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the development of reasoning about various domains of knowledge. For example, three-year-olds judge that disagreements are more acceptable in the case of opinions than factual beliefs (Flavell, Flavell, Green, & Moses, 1990). A number of researchers have mapped positions, levels, or stages of epistemological development (Belenky, Clinchy, Goldberger, & Tarule, 1986; Chandler, Boyes, & Ball, 1990; King & Kitchener, 2004; Kuhn, Cheney, & Weinstock, 2000; Perry, 1970; see Hofer & Pintrich, 1997, for a review). One common theme is that, in general, individuals move away from objectivism (Kuhn & Weinstock, 2002).

Prior work has shown that children are especially unlikely to accept disagreement in the case of moral beliefs. In one program of research, children and adolescents were less likely to accept disagreement in the domain of morality than in the domains of fact, opinion, and social convention (Kuhn et al., 2000). In addition to this difference among categories, developmental differences also emerged within categories that lacked a culturally accepted “correct answer,” such as opinions and factual claims about information participants did not know (e.g., why a particular dog was not eating). In these categories, younger children were more likely than older children to say that only one person could be right and less likely to report that it was acceptable for others to disagree with them (Heiphetz, Spelke, Harris, & Banaji, 2013; Wainryb, Shaw, Langley, Cottam, & Lewis, 2004; Wainryb, Shaw, & Maianu, 1998; Wright, 2012). Prior findings of inter-category differences suggest that children may respond differently when asked questions about moral beliefs that elicit consensus versus moral beliefs that elicit disagreement, and prior findings regarding developmental differences suggest that older participants may exhibit less objectivism than younger participants. The current work tested these hypotheses.

### 1.2. Moral objectivism across development

Work in developmental psychology has demonstrated moral objectivism among children, as discussed above. In one line of work, preschoolers and children in early elementary school were equally likely to report that only one person could be right in a disagreement about moral beliefs and a disagreement about factual beliefs (Wainryb et al., 2004). Preschoolers also reported that moral beliefs, as opposed to opinions, were true “for real” (Nichols & Folds-Bennett, 2003).

The adult literature has shown a somewhat more nuanced pattern of results. In one study (Goodwin & Darley, 2008), adults were asked to imagine that someone disagreed with them in the domains of morality, convention, opinion, and fact. Participants were more likely to respond that only one person could be right in the case of moral disagreements than in the case of convention or opinion, thereby judging moral disagreements to be more objective, similarly to children in other studies. However, adults were also more likely to respond that only one person could be right when judging disagreements about factual rather than moral statements, showing *less* objectivism in the domain of morality than in the domain of fact. Furthermore, adults’ moral objectivism was attenuated when they judged disagreements about positively-versus negatively-valenced moral items, when they judged disagreements about controversial versus widely shared moral judgments, and when they judged disagreements between two members of another culture rather than their own (Goodwin & Darley, 2012; Sarkissian, Park, Tien, Wright, & Knobe, 2011).

One aim of the current work was to test children and adults in the same paradigm. Although the existing literature suggests that children are more prone to objectivism than adults, it is challenging to draw conclusions about developmental change from experiments using different paradigms because differences between children and adults could be due to experiment-specific factors,

such as the wording of the items. In any given category (fact, opinion, morality), three patterns could emerge in the present research. First, children could demonstrate more objectivism than adults. Adults could develop a more nuanced understanding of disagreements and become better able to see multiple sides of the same issue. Moral learning could play an influential role in this process; through encountering moral disagreements, adults could learn that different perspectives on the same issue could all be valid. Second, we could find similar levels of objectivism in children and adults. This finding would suggest that objectivism is not dramatically affected by moral learning or other changes that occur between childhood and adulthood (e.g., cognitive maturation). Third, children could demonstrate less objectivism than adults. Greater experience with individuals who hold conflicting views could convince adults that their own views are the only correct ones.

### 1.3. Children’s and adults’ social preferences

While a significant body of work has compared perceptions of moral beliefs with perceptions of other mental states, far less work has examined children’s and adults’ preferences for those who share their moral beliefs. Comparing the results of the present research with past work on social preferences can shed light on the extent to which moral beliefs function similarly to or differently from other, better-studied cues to similarity (e.g., race, gender), as discussed below.

Children in preschool and elementary school show preferences based on race (e.g., Doyle & Aboud, 1995; Baron & Banaji, 2006), gender (e.g., Martin & Fabes, 2001), language/accent (e.g., Kinzler & DeJesus, 2013), similarity of opinions and physical appearance (Fawcett & Markson, 2010a, 2010b; Heiphetz, Spelke, & Banaji, 2014), and novel groups that are meaningless outside of the experimental context (e.g., Bigler & Liben, 2007; Dunham, Baron, & Carey, 2011). Meanwhile, research with adults demonstrates strong social desirability concerns regarding many of these social categories, such as race and gender. Adults do not typically report preferences based on these cues despite evidence of prejudice on implicit measures (e.g., Fazio, Jackson, Dunton, & Williams, 1995; Greenwald & Banaji, 1995) and reductions in empathy for the pain of out-group versus in-group members (Cikara, Bruneau, & Saxe, 2011; Decety, Echols, & Correll, 2010). Implicit bias in the absence of explicit animus may indicate adults’ desire to conform to egalitarian cultural norms; adults may fail to report preferences based on race or gender because they have learned that such preferences are socially unacceptable (e.g., Devine, 1989; Gaertner & Dovidio, 1986). By testing the extent to which children and adults prefer individuals who share their moral beliefs, we were able to determine the extent to which similar social desirability concerns also apply to morality.

The present work makes two contributions to the study of social preferences. First, we investigated social preferences across development. Most previous experiments on social preferences have not tested children and adults using the same paradigm, again making it difficult to directly compare across age groups. Second, we examined the extent to which children and adults report preferring characters who share their widely shared and controversial moral beliefs. Specifically, moral issues eliciting greater cultural consensus may also be associated with stronger preferences (Goodwin & Darley, 2012). However, beliefs about controversial moral issues may provide better diagnostic information (e.g., about group membership) and may therefore be associated with stronger preferences.

### 1.4. Overview of current research

The current work investigated potential differences between *widely shared* and *controversial* moral beliefs. We define widely

shared moral beliefs as those concerning topics on which a great deal of cultural consensus exists and that therefore are likely to be clear-cut for participants, e.g., judging whether or not it is acceptable to hurt someone without a compelling reason. In contrast, controversial moral beliefs concern topics that elicit disagreement and that therefore are less clear-cut. Several features could render moral beliefs controversial. The current work operationalized controversial beliefs in two different ways. In Studies 1 and 2, controversial beliefs involved disagreements regarding which of two similarly valenced behaviors is better or worse (e.g., whether it is better to help someone with a project or make cookies for someone; whether it is worse to stomp on someone's foot or hit someone). In Study 3, controversial beliefs involved disagreements regarding options that each involved some harm and some good (e.g., whether it is okay to tell prosocial lies or to harm one person in order to prevent several other people from getting hurt). We could therefore examine whether our results were robust across different operationalizations.

Many studies on the development of moral cognition have targeted widely shared moral beliefs (Conry-Murray, 2013; Nichols & Folds-Bennett, 2003; Nunner-Winkler & Sodian, 1988; Smetana, 1981; Tisak & Turiel, 1984). Although some work has investigated controversial moral beliefs (Killen, 2007; Turiel, Hildebrandt, & Wainryb, 1991), these studies have not focused on judgments concerning how many people can be right in a disagreement or possible changes in such judgments between early childhood and adulthood. For example, Turiel et al. (1991) asked high school and college students about their own beliefs concerning controversial moral issues, such as whether participants thought that abortion was “all right” or “not all right.” (For related arguments concerning moral psychology's focus on widely shared moral beliefs, see Kelly, Stich, Haley, Eng, & Fessler, 2007; Nichols, 2002; Turiel et al., 1991.) The current work extends research on controversial moral issues by probing children's and adults' judgments regarding disagreements.

For three reasons, the current work investigated controversial as well as widely shared moral issues. First, during the course of everyday life, individuals can face moral dilemmas that often elicit different responses from different people. Previous work—most famously work on the “trolley problem” examining the extent to which people judge it is acceptable to sacrifice one individual to save a greater number of people—has investigated how children and adults decide which immoral option is the lesser of two evils (e.g., Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Pellizzoni, Siegal, & Surian, 2010). However, this past work did not examine how individuals might perceive disagreements concerning such beliefs. The current studies presented preschoolers and adults with simplified moral disagreements concerning actions that children could understand. Second, individuals may encounter others who disagree with at least some of their moral beliefs, especially those regarding controversial issues. Previous studies, however, have not investigated the extent to which children and adults judge that there is only one correct answer in the case of disagreements over controversial moral issues. Third, in prior work (Heiphetz, Strohminger, & Young, in press), adults reported that changes to widely shared moral beliefs would alter relationships with others more than changes to controversial moral beliefs and that therefore widely shared moral beliefs were more central to identity. Thus, there is reason to suppose that adults think differently about different types of moral beliefs.

In addition to comparing widely shared and controversial moral beliefs, the current research investigated similarities and differences between children's and adults' representations of moral disagreements. As discussed above, differences between children and adults could point to the role of moral learning. While additional factors, such as cognitive development (e.g., moving through

Piagetian stages), could also play a role, cognitive development is also shaped by cultural experience (Gauvain, Beebe, & Zhao, 2011; Saxe, 1991). Therefore, it is likely that differences between children and adults point to at least some role for moral learning. In contrast, similarities between children and adults would indicate that all of the changes that occur during development, including moral learning, do not exert a strong influence on adults' responses.

## 2. Study 1

Study 1 investigated how children and adults perceive moral disagreements. Specifically, we examined *widely shared* and *controversial* moral beliefs. Widely shared moral beliefs occurred when a positive behavior was pitted against a negative behavior (e.g., is it better to share with someone or to pull someone's hair?). Controversial moral beliefs occurred when two behaviors rated equally positive or equally negative were pitted against each other. We drew inspiration for these items from moral dilemmas, which often pit two harmful actions (e.g., killing one person versus killing five people) against each other. We used simplified moral dilemmas that included actions that children likely perform or witness in their everyday lives (e.g., is it worse to stomp on someone's foot or to hit someone?). In each category, we presented participants with disagreements (e.g., one character thought that it was worse to stomp on someone's foot, while a different character thought that it was worse to hit someone). Note that controversial moral beliefs are *moral* beliefs insofar as they concern ethical ways to treat others and which actions are more versus less ethical (for a similar definition, see Young & Waytz, 2013). Nonetheless, controversial moral beliefs are *controversial* because they concern similarly valenced behaviors and therefore elicit disagreement across individuals. Indeed, greater consensus emerged among participants regarding widely shared rather than controversial moral beliefs (see below).

We also examined *positive* and *negative* controversial moral beliefs, that is, moral beliefs concerning either two positive actions or two negative actions. Previous work has shown that children judge obligatory actions (actions perceived to be required of everyone) differently from supererogatory actions (actions perceived to be praiseworthy but not required). For example, children use different justifications to explain why people should engage in obligatory versus supererogatory actions (Eisenberg-Berg, 1979). Of most relevance to the present research, valence plays an important role in the determination of which actions are obligatory. Children, adolescents, and adults typically construe the avoidance of harmful actions as obligatory and the performance of helpful actions as supererogatory (Kahn, 1992; Killen & Turiel, 1998). Because individuals reason that avoiding harmful behaviors is more obligatory than performing prosocial behaviors, they may also report that only one person can be right in a disagreement about negative (harmful) behaviors more frequently than in a disagreement about positive (prosocial) behaviors. In line with this prediction, previous work with adults has shown that beliefs about negative actions are perceived to be more fact-like than beliefs about positive actions (Goodwin & Darley, 2012). We tested whether children show this same behavioral pattern.

### 2.1. Method

#### 2.1.1. Participants

The sample included 84 children (54% female) between 4 and 6 years old ( $M = 4.99$  years,  $SD = 0.74$  years) and 49 adults (45% female) between 20 and 72 years old ( $M = 34.37$  years,  $SD = 11.25$  years). One additional adult completed the experiment



but failed to answer an attention check question correctly. (In this and subsequent studies, the attention check required adults to recall one question that they had answered during the study without the ability to view previously seen questions.) We tested 4- to 6-year-olds because children of this age can reason about others' minds and can report that others' mental states differ from their own (Wellman, Cross, & Watson, 2001). Younger children might not understand disagreements arising from different mental states. Additionally, preschoolers have been the focus of much prior work investigating children's moral cognition (Conry-Murray, 2013; Nichols & Folds-Bennett, 2003; Smetana, 1981), and we sought to compare our results to this prior work. We tested adults to investigate potential changes or consistencies across development and to gain insight into the role of moral learning in adults' responses.

Children were recruited in a local museum in the northeastern United States and received a sticker in exchange for their participation. On a demographic questionnaire completed during the session, parents identified their children as White (51%), Black (2%), Asian (14%), Multiracial (20%), and Other (5%); the rest of the children's parents did not identify their race. Additionally, 8% of children were identified as Hispanic or Latina/o. Adults were recruited online via Amazon Mechanical Turk and received a small amount of money ( $\leq \$1.00$ ) in exchange for their participation. On a demographic questionnaire completed at the end of the study, participants self-identified as White (80%), Black (4%), Asian (12%), and Native American or Pacific Islander (4%). Additionally, 10% of adults self-identified as Hispanic or Latina/o. All adults reported that they were residents of the United States and proficient speakers of English.

### 2.1.2. Procedure

Children completed the experiment in two blocks presented in counterbalanced order. During Block 1, they were asked for their own beliefs in five categories: fact, opinion, widely shared moral, controversial positive moral, and controversial negative moral (Appendix A). To allow time for participants to respond to multiple items in each category without over-burdening preschoolers' limited attention spans, we compared morality with only two other categories (fact and opinion), adapting items from previous work using a similar comparison (Heiphetz et al., 2013). We also used only two trials in each category (e.g., participants were asked to indicate two of their own factual beliefs, two of their own opinions, and so on). Although this choice limited the number of different items we could test in each category, it allowed us to test a greater number of categories within the limits of preschoolers' attention spans and is consistent with prior developmental work using only one or two items per category (Rhodes & Chalik, 2013; Shaw, Li, & Olson, 2012). Furthermore, the results of Study 1 were consistent with results from Study 3, which tested twice as many items per category.

Moral items were selected based on pre-testing with adults, who were asked to rate each behavior on a scale from 1 ("very bad") to 7 ("very good"). In the widely shared moral items, behaviors in a given pair were equidistant from the midpoint. In the controversial moral items, behaviors in a given pair were rated as equally good or equally bad. Participants answered two questions in each category, for a total of ten questions concerning their own beliefs. After each item, participants indicated their certainty in their judgment. Among children and adults, the certainty item did not reliably predict our main measure of interest. Therefore, this variable will not be discussed further in the main text; however, additional details are included in Supplementary Materials.

During Block 2, children viewed a Power Point display featuring pairs of White characters of the same gender and approximate age as each other, as determined by a pre-test given to adults. During each trial, the experimenter attributed conflicting beliefs to each

character and then asked children whether both or only one of the characters could be right. For example, on one trial, the experimenter said, "This person [pointing to child on left] thinks that it is worse to spit at someone, and this person [pointing to the child on the right] thinks that it is worse to slap someone's face. Can only one person be right, or can both of these people be right?" Each trial featured photographs of different characters, and the following variables were counterbalanced across participants: (1) item order; (2) which characters were paired with which beliefs; (3) which characters appeared on the left and right side of the screen; (4) order of statements (e.g., whether the belief that spitting is worse or that slapping someone's face is worse was mentioned first); (5) order of response options (half of the participants were asked, "Can both of these people be right, or can only one person be right?"). Adults followed a similar procedure; however, they answered questions via a self-paced online computer task and did not view pictures of the characters. To explain the somewhat simplistic study materials, adults were told that the experiment was also being conducted with children.

### 2.2. Results

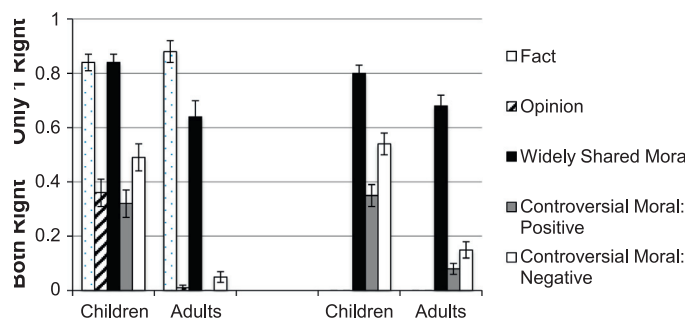
To test whether the controversial moral beliefs were, indeed, controversial, we compared the proportion of participants who expressed each of the two viewpoints for each moral belief. The widely shared moral judgments elicited a great deal of consensus; the strong majority of participants (ranging from 88% to 96%) selected the expected answer (e.g., that sharing with someone is better than pulling someone's hair). Majorities were weaker for controversial moral beliefs, ranging from 50% to 86%. Note that this same pattern emerged in Studies 2 and 3, which demonstrated even greater differences in terms of consensus across widely shared versus controversial moral beliefs. See Supplementary Materials for more details on degree of consensus in all studies.

The proportion of trials on which participants stated that only one character could be right (denoted as "one right" below) served as the dependent measure. We analyzed these responses using a 2 (Participant Age: child vs. adult)  $\times$  5 (Category: fact vs. opinion vs. widely shared moral vs. controversial positive moral vs. controversial negative moral) mixed design ANOVA with repeated measures on the second factor.

Both independent variables exerted a main effect (Participant Age:  $F(1, 124) = 43.10, p < 0.001$ , partial  $\eta^2 = 0.26$ ; Category:  $F(3.32, 411.78) = 164.98, p < 0.001$ , partial  $\eta^2 = 0.57$ ). These main effects were qualified by a Participant Age  $\times$  Category interaction,  $F(3.32, 411.78) = 12.43, p < 0.001$ , partial  $\eta^2 = 0.09$  (Fig. 1).<sup>1</sup> In this and all subsequent ANOVAs, we explored significant interactions using Bonferroni-corrected simple effects tests. For each of these analyses, as well as every other analysis involving more than one comparison, we report the Bonferroni-corrected significance threshold alongside uncorrected  $p$  values.

We first examined differences among categories for children and adults separately. Because this analysis included 20 total comparisons,  $p$  values needed to be 0.003 or lower to pass the Bonferroni-corrected significance threshold. Simple effects tests showed that adults were more likely to say "one right" when presented with factual beliefs versus widely shared moral beliefs ( $p < 0.001$ , Cohen's  $d = 0.53$ ) and when presented with widely shared moral beliefs versus controversial negative moral beliefs ( $p < 0.001$ , Cohen's  $d = 1.34$ ), which did not differ from opinions or controversial positive moral beliefs ( $ps \geq 0.32$ , Cohen's  $ds \leq 0.33$ ). Children were most likely to say "one right" when

<sup>1</sup> In all ANOVAs with non-integer degrees of freedom, we used a Greenhouse-Geisser correction to correct for a violation of sphericity.



**Fig. 1.** Proportion of trials on which participants reported that only one character could be right in Study 1 (left) and Study 2 (right). Study 2 did not include beliefs concerning facts and opinions. Error bars represent standard error of the mean.

presented with factual beliefs and widely shared moral beliefs, which did not differ from each other ( $p = 0.88$ , Cohen's  $d = 0$ ), in contrast to adults. Children were more likely to say “one right” when presented with widely shared moral beliefs versus controversial negative moral beliefs ( $p < 0.001$ , Cohen's  $d = 0.81$ ), similar to adults, and when presented with controversial negative moral beliefs versus opinions ( $p = 0.002$ , Cohen's  $d = 0.24$ ), which did not differ from controversial positive moral beliefs ( $p = 0.12$ , Cohen's  $d = 0.11$ ).

We also examined age differences within each category. This analysis involved five comparisons; therefore,  $p$  values needed to be 0.01 or lower to pass the Bonferroni-corrected significance threshold. Children and adults were equally likely to say “one right” in the category of fact ( $p = 0.60$ , Cohen's  $d = 0.14$ ). In every other category, children were more likely than adults to say “one right” ( $ps \leq 0.003$ , Cohen's  $ds \geq 0.55$ ). In addition to examining differences between children and adults, we examined potential differences between older and younger participants within age groups. Despite the developmental changes that occur within the age groups we tested (e.g., changes in theory of mind development across the preschool years, Perner & Roessler, 2012), consistent differences did not emerge. See Supplementary Materials for these analyses for Studies 1–3.

The analyses above allowed us to determine whether participants viewed some categories in more objective terms than other categories. We were also interested in the extent to which each category was viewed in objective terms relative to an absolute standard. Therefore, we compared the proportion of “one right” responses in each category to chance (0.50) separately for children and adults. Values above 0.5 indicate a pattern consistent with objectivism (i.e., the propensity to report that only one person could be right in a disagreement), whereas values below 0.5 indicate a relativist response pattern (i.e., the propensity to report that both people could be right). Because this analysis involved ten comparisons,  $p$  values needed to be 0.005 or lower to pass the Bonferroni-corrected significance threshold. Every comparison significantly differed from chance ( $ps \leq 0.003$ , |Cohen's  $d$ |s  $\geq 0.34$ ) except for two: children's responses to disagreements about controversial negative moral beliefs ( $p = 0.89$ , Cohen's  $d = -0.02$ ) and adults' responses to disagreements about widely shared moral beliefs ( $p = 0.03$ , Cohen's  $d = 0.33$ ). (This analysis was not performed for adults' responses to controversial positive moral beliefs because all adults responded “both right” to all items in this category.) Both children and adults exhibited objectivism in response to disagreements about factual beliefs and relativism in response to disagreements about opinions and controversial positive moral beliefs. Furthermore, children demonstrated objectivism in response to disagreements about widely shared moral beliefs, and adults demonstrated relativism about controversial negative moral beliefs.

The two categories that did not differ from chance could be associated with one of two possible response patterns. First, participants' responses could oscillate; that is, participants could have responded “one right” to one item in the category and “both right” to the other item. Second, participants' responses could be polarized; that is, half of the participants could have responded “one right” to both items, while the remaining participants responded “one right.” The data showed evidence of oscillation rather than polarization; see Supplementary Materials for analyses.

### 2.3. Discussion

As in prior studies investigating children and adults separately, Study 1 revealed that adults responded differently to questions about widely shared moral beliefs, factual beliefs, and opinions, while children responded similarly to questions about widely shared moral beliefs and factual beliefs. Similarly, in line with prior work demonstrating that objectivism decreases across age in categories where disagreement is plausible (Heiphetz et al., 2013; Wainryb et al., 1998, 2004; Wright, 2012), children were more likely than adults to respond “one right” in every category other than fact. One interpretation of these results is that, by virtue of social experience and learning, adults may have a more mature understanding of disagreement than do children. For example, coming into contact with diverse moral judgments and opinions—sometimes from two reasonable individuals—may lead adults to judge that moral issues and opinions are not as clear-cut as they once thought as children and that multiple people may be right even if they disagree with each other.

The main contribution of Study 1 was to establish an effect not previously reported in the literature. Namely, preschoolers responded differently to questions about widely shared versus controversial moral beliefs and to questions about positive versus negative controversial moral beliefs. This finding suggests that different perceptions of these beliefs can emerge alongside the propensity to respond differently to questions about widely shared moral beliefs and other mental states, such as opinions. Indeed, higher levels of objectivism in response to questions about widely shared versus controversial moral beliefs emerged among both children and adults, indicating that this pattern may not depend on the greater social experience and cognitive sophistication in adults as compared with children. However, adults exhibited stronger effects (e.g., Cohen's  $d$  for the difference between widely shared and controversial negative moral beliefs was 1.34 for adults and 0.81 for children). Thus, although the propensity to respond differently to questions about widely shared versus controversial moral beliefs is in place by the preschool years, this propensity may increase in strength across development.

### 3. Study 2

In Study 1, children and adults were more likely to say that only one person could be right in a disagreement concerning widely shared versus controversial moral beliefs. The purpose of Study 2 was twofold. First, we sought to replicate this effect. Second, we investigated the extent to which children and adults might respond differently to questions about widely shared and controversial moral beliefs when those questions targeted a new domain—social preference. Although moral cognition and social preferences are often studied separately, some prior work has shown that these two constructs are intertwined early in development. For example, 9- and 14-month-olds prefer those who help characters who share the infants' opinions and those who harm characters who do not share the infants' opinions (Hamlin, Mahajan, Liberman, & Wynn, 2013), and older children use moral

rules when deciding whether to include or exclude out-group members from social activities (Rutland, Killen, & Abrams, 2010). Building on this work, Study 2 investigated the extent to which social preferences are sensitive to differences between widely shared and controversial moral beliefs.

### 3.1. Method

#### 3.1.1. Participants

The sample included 137 children (49% female) between 4 and 6 years old ( $M = 5.04$  years,  $SD = 0.84$  years) and 119 adults (40% female) between 20 and 69 years old ( $M = 33.54$  years,  $SD = 12.00$  years). Data from 12 additional children were discarded because these participants experienced difficulty understanding English ( $N = 2$ ), because a family member interfered during testing ( $N = 7$ ), because the child did not understand the stimuli ( $N = 2$ ), or because the child dropped out prior to answering any experimental items ( $N = 1$ ). Data from ten additional adults were discarded because these participants failed to correctly answer an attention check item ( $N = 9$ ) or because they had participated in Study 1 ( $N = 1$ ).<sup>2</sup>

Recruitment procedures were identical to Study 1. Parents identified their children as White (66%), Black (5%), Asian (7%), Multiracial (12%), and Other (4%); the rest of the children's parents did not identify their race. Additionally, 7% of children were identified as Hispanic or Latina/o. Adults self-identified as White (82%), Black (6%), Asian (4%), and Multiracial (7%); the remaining participant did not identify his/her race. Additionally, 8% of adults identified as Hispanic or Latina/o.

#### 3.1.2. Procedure

The procedure was identical to Study 1 with two notable exceptions. First, because the main question of interest concerned widely shared and controversial moral beliefs, participants were not asked about factual beliefs or opinions. Second, in addition to indicating whether only one or both characters could be right, participants were also asked the following social preference question: "Which person do you like more?" This question was always paired with the moral objectivism question (eliciting "one right" responses); the order of these two questions was kept constant within participants but counterbalanced across participants. As in Study 2, participants responded to two beliefs per category.

### 3.2. Results

#### 3.2.1. Objectivism ratings

As in Study 1, we analyzed the proportion of "one right" responses using a 2 (Participant Age: child vs. adult)  $\times$  3 (Category: widely shared moral vs. controversial positive moral vs. controversial negative moral) mixed design ANOVA with repeated measures on the second factor. Both independent variables exerted a main effect (Participant Age:  $F(1, 249) = 61.88$ ,  $p < 0.001$ , partial  $\eta^2 = 0.20$ ; Category:  $F(1.83, 454.43) = 198.96$ ,  $p < 0.001$ , partial  $\eta^2 = 0.45$ ). These main effects were qualified by a Participant Age  $\times$  Category interaction,  $F(1.83, 454.43) = 12.38$ ,  $p < 0.001$ , partial  $\eta^2 = 0.05$  (Fig. 1).

<sup>2</sup> Approximately half of the participants in Study 2 ( $N_s = 50$  children and 60 adults) were exposed to a prime prior to completing the procedure. Half of the participants in each age group were asked a question intended to prime moral objectivism, while the other half were asked a question intended to prime moral relativism (Young & Durwin, 2013). The purpose of these primes was to investigate whether moral objectivism was causally related to prejudice against people who did not share one's own beliefs. However, we found no significant effects of priming condition and therefore collapsed across data from participants who received the moral objectivism prime, the moral relativism prime, and no prime. Additional information about the primes is available in Supplementary Materials.

To better understand this interaction, we first examined differences among categories for children and adults separately. Because this analysis included six comparisons,  $p$  values needed to be 0.01 or lower to pass the Bonferroni-corrected significance threshold. Simple effects tests showed that adults were most likely to say "one right" when presented with widely shared moral beliefs, which differed from controversial negative moral beliefs and controversial positive moral beliefs ( $ps < 0.001$ , Cohen's  $ds \geq 1.04$ ), which did not differ from each other (uncorrected  $p = 0.04$ , Cohen's  $d = 0.26$ ). Children were most likely to say "one right" when presented with widely shared moral beliefs, which differed from controversial negative moral beliefs ( $p < 0.001$ , Cohen's  $d = 0.59$ ), as in adults, which in turn differed from controversial positive moral beliefs ( $p < 0.001$ , Cohen's  $d = 0.44$ ). These results replicated the patterns in Study 1. We also examined age differences within each category. Because this analysis included three comparisons,  $p$  values needed to be 0.02 or lower to pass the Bonferroni-corrected significance threshold. As in Study 1, children were more likely than adults to say "one right" in each category ( $ps \leq 0.01$ , Cohen's  $ds \geq 0.32$ ).

In addition to comparing "one right" responses across categories and age groups, we also compared the proportion of "one right" responses in each category to chance (0.50) separately for children and adults. Again,  $p$  values needed to be 0.01 or lower to remain significant after applying a Bonferroni correction. Similarly to Study 1, responses differed from chance ( $ps < 0.001$ , |Cohen's  $d$ s  $\geq 0.36$ ) in all categories except children's judgments of controversial negative moral beliefs ( $p = 0.22$ , Cohen's  $d = 0.11$ ). As in Study 1, these findings reflected oscillation rather than polarization; see Supplementary Materials.

#### 3.2.2. Social preference ratings

The novel contribution of Study 2 was examining children's and adults' social preferences based on moral beliefs. We analyzed the proportion of trials on which participants reported preferring the character who agreed with them using a 2 (Participant Age: child vs. adult)  $\times$  3 (Category: widely shared moral vs. controversial positive moral vs. controversial negative moral) mixed design ANOVA with repeated measures on the second factor. Both independent variables exerted a main effect (Participant Age:  $F(1, 249) = 33.13$ ,  $p < 0.001$ , partial  $\eta^2 = 0.12$ ; Category:  $F(1.85, 461.44) = 41.27$ ,  $p < 0.001$ , partial  $\eta^2 = 0.14$ ). These main effects were qualified by a Participant Age  $\times$  Category interaction,  $F(1.85, 461.44) = 8.47$ ,  $p < 0.001$ , partial  $\eta^2 = 0.03$  (Fig. 2). We further probe this interaction below; however, it did not emerge in Study 3 and therefore should be interpreted with caution.

To better understand this interaction, we first examined differences among categories for children and adults separately. This analysis included a total of six comparisons; therefore,  $p$  values

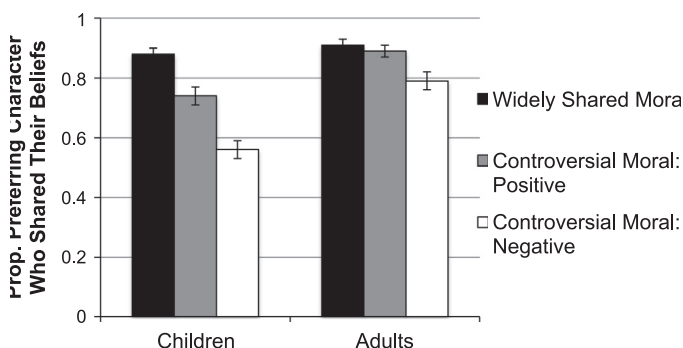


Fig. 2. Proportion of trials on which participants reported preferring the character who agreed with them, Study 2. Error bars represent the standard error of the mean.



needed to be 0.01 or lower to pass the Bonferroni-corrected significance threshold. Simple effects tests showed that adults were most likely to report preferring characters who shared their widely shared moral beliefs and controversial positive moral beliefs, which did not differ from each other ( $p = 0.49$ , Cohen's  $d = 0.08$ ). Controversial negative moral beliefs differed significantly from both other categories ( $ps \leq 0.01$ , Cohen's  $ds \geq 0.28$ ). Children were most likely to report preferring the character who shared their widely shared moral beliefs, which differed from controversial positive moral beliefs ( $p < 0.001$ , Cohen's  $d = 0.38$ ), which in turn differed from controversial negative moral beliefs ( $p < 0.001$ , Cohen's  $d = 0.38$ ).

We also examined age differences within each category. Because this analysis included three comparisons,  $p$  values needed to be 0.02 or lower to pass the Bonferroni-corrected significance threshold. Children and adults did not differ in the category of widely shared moral beliefs ( $p = 0.30$ , Cohen's  $d = 0.12$ ). However, in the two controversial categories, adults reported *stronger* social preferences ( $ps < 0.001$ , Cohen's  $ds \geq 0.51$ ). This result differs from many reported findings in the intergroup literature showing that explicit social preferences are weaker in adults than in children (e.g., Baron & Banaji, 2006; Doyle & Aboud, 1995; Hailey & Olson, 2013; Jugert, Noack, & Rutland, 2011). The current finding therefore suggests that social preferences based on moral beliefs are not susceptible to the same types of social desirability concerns that influence adults' explicit responses in more frequently studied domains, such as race and gender. Whereas most adults have learned that it is unacceptable to report preferring members of some racial groups over others, for example, they do not appear to consider preferences based on moral beliefs to be socially undesirable. Furthermore, while some have argued that social preferences in the domains of race, gender, and national origin do not require protracted social learning to emerge (Kelly et al., 2005; Kinzler, Dupoux, & Spelke, 2007; Quinn, Yahr, Kuhn, Slater, & Pascalis, 2002), the current study suggests that social preferences based on moral beliefs may increase in strength across development.

In addition to comparing preferences across categories and age groups, we also compared the proportion of trials on which participants reported preferring the character who shared their own beliefs to chance (0.50) separately for children and adults. Because this analysis included six comparisons,  $p$  values needed to be 0.01 or lower to pass the Bonferroni-corrected significance threshold. All responses differed from chance ( $ps < 0.001$ , |Cohen's  $d$ |  $s \geq 0.68$ ) except for responses in one category: children's perceptions of disagreements regarding controversial negative moral beliefs ( $p = 0.09$ , Cohen's  $d = 0.15$ ). As in earlier analyses, this pattern for controversial negative moral beliefs reflected oscillation rather than polarization; see Supplementary Materials.

Finally, we investigated the association between social preferences and moral objectivism. These analyses did not reveal a consistent relationship either in this study or in Study 3 among either children or adults; see Supplementary Materials for these data for both studies.

### 3.3. Discussion

The purpose of Study 2 was to replicate Study 1 and to extend the investigation of moral beliefs to the domain of social preference. Like Study 1, Study 2 revealed more moral objectivism among children and adults in the category of widely shared (versus controversial) moral beliefs. That is, children and adults were more likely to say that only one character could be right when faced with disagreements concerning widely shared moral beliefs. As in Study 1, the difference between widely shared and controversial moral beliefs was greater among adults than among children, highlight-

ing a potential role for moral learning to enhance effects that are already in place by the preschool years. Additionally, as in Study 1, children were more likely than adults to say "one right" when faced with disagreements about both kinds of moral beliefs.

Similarly, children and adults typically reported stronger preferences for characters who shared their widely shared versus controversial beliefs. In the category of widely shared moral beliefs, children and adults preferred characters who shared their beliefs, and the magnitude of this preference did not significantly differ between age groups. However, children showed weaker preferences than did adults in the controversial categories. Adults demonstrated stronger preferences for individuals who shared their own controversial moral beliefs while simultaneously acknowledging that both people could be right, indicating that adults' social preferences are not driven solely by the perception that people who disagree with them are wrong. We return to this point in the General Discussion. The stronger social preferences reported by adults also indicate that a desire to appear egalitarian does not play a strong role in social preferences based on shared moral beliefs. Adults may judge that it is socially acceptable to report preferring characters who share their moral beliefs, separating morality from categories such as race and gender where social preferences have been studied more extensively.

## 4. Study 3

The purpose of Study 3 was to determine whether the results from Studies 1 and 2 depended on the specific stimuli we used. In the course of daily life, individuals must frequently weigh multiple courses of action, none of which are ideal, and resolve moral dilemmas. However, judging which of two positive behaviors is better or which of two negative behaviors is worse, as in Studies 1 and 2, may seem far less natural.

To address this concern, Study 3 relied on a different set of stimuli. As before, controversial moral beliefs included beliefs that did not elicit a great deal of consensus across individuals and that, in particular, elicited less consensus than did widely shared moral beliefs. However, in Study 3, these beliefs concerned behaviors that were placed in contexts that may be encountered during everyday life. For example, rather than presenting participants with a disagreement about whether it is better to help someone with a project or make cookies for someone (a stimulus item from Studies 1 and 2), we presented them with a disagreement about whether it is better to tell the truth and hurt someone's feelings or to lie in order to spare someone's feelings. This is a relatively familiar situation for both children and adults, who often face decisions such as whether to express pleasure or sadness about a disappointing gift (Serota & Levine, 2015; Talwar, Murphy, & Lee, 2007; Warneken & Orlins, 2015). Unlike Studies 1 and 2, where the controversy in controversial moral items derived from their similar valence, Study 3 created controversy by presenting two options which involved both a positive component (e.g., telling the truth, sparing someone's feelings) and a negative component (e.g., lying, hurting someone's feelings). Selecting between these options thus involved weighing different moral values (e.g., honesty, care for others) against each other. In contrast, the widely shared moral beliefs used in Study 3 compared a clearly harmful choice with a clearly prosocial choice (e.g., harming someone versus complimenting someone).

### 4.1. Method

#### 4.1.1. Participants

The sample included 111 children (44% female) between 4 and 6 years old ( $M = 4.89$  years,  $SD = 0.79$  years) and 115 adults (44%

female) between 19 and 68 years old ( $M = 35.99$  years,  $SD = 12.40$  years). Data from five additional children were discarded because they answered pilot versions of questions that were worded slightly differently from the final items, and data from five additional adults were discarded because they failed to correctly answer an attention check item ( $N = 1$ ) or participated in earlier studies from this project ( $N = 4$ ).

Recruitment procedures were identical to Studies 1 and 2. Parents identified their children as White (65%), Black (4%), Asian (14%), Multiracial (4%), and Other (2%); the rest of the children's parents did not identify their race. Additionally, 5% of children were identified as Hispanic or Latina/o. Adults self-identified as White (82%), Black (8%), Asian (6%), Multiracial (4%), and Other (1%). Additionally, 7% of adults identified as Hispanic or Latina/o.

#### 4.1.2. Procedure

The procedure was identical to Study 2, with the following exceptions. Widely shared vignettes presented participants with a choice between a harmful behavior and a prosocial behavior, e.g., “Noah has brown hair, but he really wishes he had blonde hair. Noah doesn't like people who have blonde hair because he is jealous. One day, Noah sees Oliver walking to school. Oliver has blonde hair. Should Noah pull Oliver's hair as hard as he can, or should Noah tell Oliver how much he likes Oliver's hair?” Controversial vignettes presented participants with moral dilemmas that involved a choice between two behaviors with both negative and positive components. Because these items featured a choice between behaviors with both harmful and prosocial components, it was not possible to separate these items into positive and negative controversial questions, as in Studies 1 and 2. The specific vignettes (including choices about whether or not to steal medicine for a loved one, whether or not to tell a small lie to spare someone's feelings, and whether or not to harm someone in order to prevent that person from harming someone else) were based on prior work on moral dilemmas (e.g., Kohlberg, 1963; Warneken & Orins, 2015). For example, one vignette read, “Violet's mother is very sick. Her family does not have the money to buy the medicine she needs, and Violet's mother will get sicker unless she takes the medicine soon. Should Violet help her mother get better by stealing the medicine, or should Violet not steal the medicine and watch her mother get sicker?” This vignette is controversial because both options include some harm (stealing, allowing someone to become sicker) and some good (healing an ill person, refraining from stealing). Furthermore, individuals can disagree about the “right” or “moral” choice in this situation (Kohlberg, 1963). See Appendix B for all widely shared and controversial items.

Because the widely shared and controversial scenarios used in Study 3 were more complex than those used in Studies 1 and 2 (the vignettes were longer because they placed behaviors in context, and each choice involved both positive and negative components), participants responded only to the widely shared items ( $N_{\text{children}} = 56$ ,  $N_{\text{adults}} = 54$ ) or only to the controversial items ( $N_{\text{children}} = 55$ ,  $N_{\text{adults}} = 61$ ). Participants in each condition responded to four vignettes. After hearing (children) or reading (adults) each vignette, participants indicated which behavior they thought the character should perform. Participants then learned about two characters who held differing beliefs, as in Studies 1 and 2 (e.g., “Look, this person thinks that Violet should help her mother get better by stealing the medicine, and this person thinks that Violet should not steal the medicine and watch her mother get sicker”). As in Study 2, children and adults indicated whether they thought only one or both characters could be right and which character they liked better. Materials were counterbalanced as in Study 2.

## 4.2. Results

### 4.2.1. Objectivism ratings

We analyzed the proportion of “one right” responses using a 2 (Participant Age: child vs. adult)  $\times$  2 (Category: widely shared moral vs. controversial moral) between subjects ANOVA. As in Studies 1 and 2, both independent variables exerted a main effect (Participant Age:  $F(1, 222) = 76.05$ ,  $p < 0.001$ , partial  $\eta^2 = 0.26$ ; Category:  $F(1, 222) = 75.44$ ,  $p < 0.001$ , partial  $\eta^2 = 0.25$ ). These main effects were qualified by a Participant Age  $\times$  Category interaction,  $F(1, 222) = 8.70$ ,  $p = 0.004$ , partial  $\eta^2 = 0.04$  (Fig. 3).

To better understand this interaction, we first examined differences between categories for children and adults separately. This resulted in one comparison in each age group, for a total of two comparisons; therefore,  $p$  values needed to be 0.03 or lower to pass the Bonferroni-corrected threshold. Simple effects tests showed that, similarly to Studies 1 and 2, both children and adults were more likely to say “one right” when presented with widely shared rather than controversial moral beliefs ( $ps < 0.001$ , Cohen's  $d = 0.70$  for children and 1.75 for adults). Furthermore, in both conditions, children were more likely than adults to say “one right” ( $ps < 0.001$ , Cohen's  $ds \geq 1.04$ ).

In addition to comparing “one right” responses across categories and age groups, we also compared the proportion of “one right” responses in each category to chance (0.50) separately for children and adults. Because this analysis involved four comparisons,  $p$  values needed to be 0.01 or lower to pass the Bonferroni-corrected significance threshold. Responses differed from chance in all categories ( $ps \leq 0.001$ , Cohen's  $ds \geq 0.47$ ). Again, this result is similar to those obtained in Studies 1 and 2.

### 4.2.2. Social preference ratings

As in Study 2, we analyzed the proportion of trials on which participants reported preferring the character who shared their beliefs using a 2 (Participant Age: child vs. adult)  $\times$  2 (Category: widely shared moral vs. controversial moral) between subjects ANOVA. As in Study 2, we found a main effect of Participant Age ( $F(1, 220) = 44.96$ ,  $p < 0.001$ , partial  $\eta^2 = 0.17$ ); adults reported stronger preferences for those who shared their beliefs than did children. Furthermore, as in Study 2, we found a main effect of Category ( $F(1, 220) = 14.98$ ,  $p < 0.001$ , partial  $\eta^2 = 0.06$ ); participants reported stronger preferences for characters who shared their widely shared rather than controversial moral beliefs. Unlike Study 2, which showed that adults reported stronger preferences than children especially for controversial moral beliefs, Study 3 did not reveal a Participant Age  $\times$  Category interaction ( $p = 0.09$ ; Fig. 4). However, independent-samples  $t$ -tests showed that, as in Study 2, both children ( $t(107) = -3.04$ ,  $p = 0.003$ , Cohen's

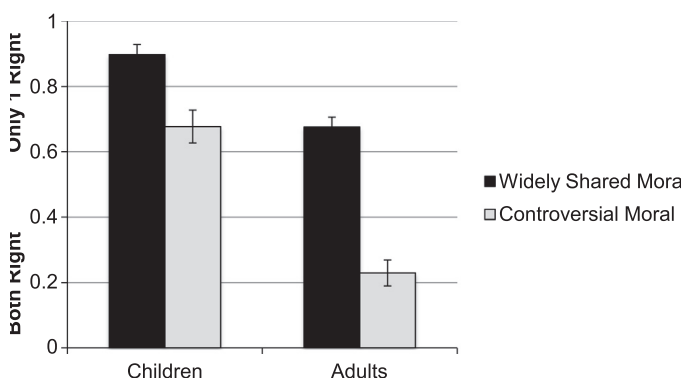
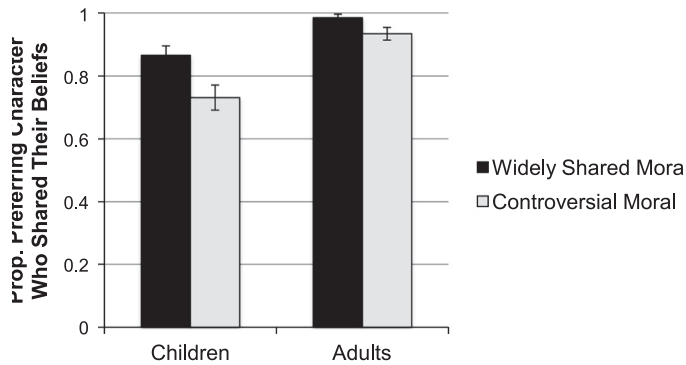


Fig. 3. Proportion of trials on which participants reported that only one character could be right, Study 3. Error bars represent standard error of the mean.





**Fig. 4.** Proportion of trials on which participants reported preferring the character who agreed with them, Study 3. Error bars represent the standard error of the mean.

$d = 0.60$ ) and adults ( $t(80.90) = -2.58, p = 0.01$ , Cohen's  $d = 0.56$ ) reported stronger preferences for characters who shared their widely shared rather than controversial moral beliefs.

In addition to comparing preferences across categories and age groups, we also compared the proportion of trials on which participants reported preferring the character who shared their own beliefs to chance (0.50) separately for children and adults. Because this analysis involved four comparisons,  $p$  values needed to be 0.01 or lower to pass the Bonferroni-corrected significance threshold. All responses differed from chance ( $ps < 0.001$ , Cohen's  $ds \geq 0.89$ ).

#### 4.3. Discussion

The purpose of Study 3 was to determine the extent to which the results from Studies 1 and 2 could be obtained using a different operationalization of widely shared and controversial moral beliefs. Study 3 replicated the main results of Studies 1 and 2. Specifically, as in these early studies, participants in Study 3 exhibited more objectivism regarding widely shared than controversial moral beliefs. This pattern emerged among preschoolers and adults but was stronger in the older age group (Cohen's  $ds = 0.70$  versus 1.75), indicating that the propensity to report more objectivism regarding widely shared than controversial moral beliefs emerges relatively early and continues to grow in strength across development. With social experience, individuals may learn about more differences between these types of moral beliefs. For example, older individuals have more opportunities to observe the frequency of disagreements about widely shared versus controversial issues, and they learn more about the antecedents and consequences of such disagreements. Thus, moral learning may explain why adults showed a stronger propensity than children to respond differently to questions about widely shared and controversial moral beliefs.

In addition to replicating earlier results regarding moral objectivism, Study 3 also revealed patterns of social preference that were broadly consistent with the patterns observed in Study 2. In both studies, participants reported stronger preferences for those who shared their widely shared versus controversial moral beliefs. Furthermore, adults showed stronger social preferences for those who shared their moral beliefs than did children (even while exhibiting weaker moral objectivism than children), suggesting that exposure to diverse viewpoints may enhance rather than attenuate preferences based on moral beliefs. As individuals observe the consequences of moral disagreements, they may increasingly learn to prefer those who agree with them. This pattern appears to hold both for the somewhat arbitrary moral choices used in Study 2 (which of two positive behaviors is better or which of two negative behaviors is worse) and the more ordinary moral dilemmas used in Study 3 (which of two choices is better in cases

where each choice contains positive and negative elements). However, unlike Study 2—which showed this result to be specific to controversial moral beliefs—adults in Study 3 showed stronger preferences than did children across both widely shared and controversial moral beliefs. The developmental changes resulting in differences between children and adults appear to occur between preschool and adulthood, as age differences within each group did not predict social preferences (or moral objectivism).

## 5. General discussion

Three studies investigated children's and adults' perceptions of widely shared and controversial moral beliefs. In each study, widely shared moral beliefs elicited more objectivism (that is, a greater tendency to report that only one person could be right in a disagreement) than did controversial moral beliefs. Although this difference emerged among children as well as adults, adults reported less objectivism than did children regarding all moral beliefs. Furthermore, the difference between widely shared and controversial moral beliefs was larger among adults than among children. Thus, although the propensity to respond differently to questions about different moral beliefs emerges early in development, the magnitude of this effect grows as individuals mature cognitively and as they encounter more people with different moral beliefs. As individuals learn about the many differences between widely shared and controversial moral beliefs (e.g., widely shared moral beliefs elicit greater consensus and are judged to be more central to identity [Heiphetz et al., in press]; the consequences of disagreements regarding widely shared moral beliefs may be more severe than the consequences of disagreements regarding controversial moral beliefs), they may come to perceive an even greater difference between these types of beliefs than they did as children.

In addition to investigating the extent to which individuals perceive that only one person can be right in disagreements concerning widely shared and controversial moral beliefs, Studies 2 and 3 sought to determine whether children and adults might also report stronger preferences for those who share their beliefs in one of these domains rather than the other. In these studies, participants in both age groups typically reported stronger preferences for those who agreed with their widely shared moral beliefs than their controversial moral beliefs. Furthermore, adults showed stronger preferences for those who shared their moral beliefs than did children. Although this developmental difference was limited to controversial moral beliefs in Study 2, Study 3 showed stronger preferences among adults for widely shared as well as controversial moral beliefs. Broadly speaking, preferences for those who share one's moral beliefs appear to grow in strength across development.

### 5.1. Perceived differences between widely shared and controversial moral beliefs

Previous work has shown that children perceive widely shared moral beliefs similarly to beliefs about facts (Nichols & Folds-Bennett, 2003; Nucci, 2001; Smetana, 1981; Smetana, Schlagman, & Adams, 1993; Wainryb et al., 2004). The current line of work extended these findings to controversial moral beliefs—moral beliefs that do not elicit strong consensus (for a discussion of the influence of consensus on adults' moral cognition, see Goodwin & Darley, 2012). In all studies reported here, both children and adults treated controversial moral beliefs as less fact-like and more opinion-like than widely shared moral beliefs. Because children have encountered a relatively high degree of consensus about widely shared moral beliefs, they may conclude that these beliefs

are more similar to beliefs about facts, compared to controversial moral beliefs. Meanwhile, because the degree of consensus about controversial moral beliefs is lower, children may conclude that controversial moral beliefs are more similar to opinions, compared to widely shared moral beliefs. By the time they have reached preschool age, children already respond differently to questions about different kinds of moral belief, despite the fact that all moral beliefs have much in common (e.g., all concern questions of right and wrong). Therefore, this pattern appears not to depend on social experience obtained after the age of six years.

In addition to judging widely shared moral beliefs as more fact-like than controversial moral beliefs, children in Studies 1 and 2 judged that controversial negative moral beliefs were more fact-like than controversial positive moral beliefs. This finding might reflect the tendency to reason that avoiding harmful behaviors is more obligatory than performing prosocial behaviors (Kahn, 1992; Killen & Turiel, 1998). This result is also consistent with prior work showing that adults treat beliefs about negative actions (e.g., how wrong it is to steal) as more fact-like than beliefs about positive actions (e.g., how good it is to donate to charity; Goodwin & Darley, 2012), although we did not find this pattern in the adults we tested.

### 5.2. Social preferences based on moral beliefs

To date, studies on the development of moral cognition and studies on children's social preferences have been conducted largely in parallel (for notable exceptions, see Hamlin et al., 2013; Rutland et al., 2010). The current work unites these literatures by showing that both children and adults prefer those who share, versus do not share, their moral beliefs. In addition to showing that children and adults were more likely to report that only one person can be right in a disagreement about widely shared (versus controversial) moral beliefs, Studies 2 and 3 demonstrate that children and adults also reported stronger preferences for characters who shared their widely shared (versus controversial) moral beliefs.

This developmental consistency suggests that perceiving widely shared moral beliefs as more fact-like than controversial moral beliefs and reporting stronger preferences for those who share one's own widely shared (versus controversial) moral beliefs do not appear to depend on the moral learning and cognitive development that take place between the preschool years and adulthood. However, notable developmental differences did emerge. While adults were more likely than children to report that more than one person could be right in the case of a moral disagreement, adults also reported stronger preferences than did children for those sharing their moral beliefs, particularly in the case of controversial moral beliefs. When reporting attitudes toward the social groups commonly studied by social psychologists, such as race and gender, older children and adults typically report weaker group-based preferences than do younger children, perhaps because they have learned that it is socially unacceptable to report preferences based on these dimensions (e.g., Baron & Banaji, 2006; Hailey & Olson, 2013). In contrast, adults appear to believe that moral diversity is less important and may even be undesirable. In one study, for example, undergraduates reported valuing demographic diversity (e.g., regarding groups based on race and gender) more than moral diversity (e.g., regarding views on issues such as abortion and gun control; Haidt, Rosenberg, & Hom, 2003). Indeed, according to Haidt et al. (2003), valuing moral diversity may be incoherent. In their view, expressing a viewpoint on a moral issue but preferring to live in a world where many people hold an opposing view trivializes the issue at hand by reducing it to a mere opinion. In this framework, the moral domain is defined in part by objectivism; if participants perceive disagreement about a particu-

lar belief to be acceptable, that belief may not form a part of the moral domain.

In one respect, the current results converge with Haidt et al.'s (2003) findings regarding adults' strong preferences for those who share their moral beliefs. At the same time, the current results also reveal that adults report stronger social preferences than do children while accepting that people with different moral beliefs can both be right (to a greater extent than do children). Adults' social preferences, in conjunction with their perceptions of whether only one person or both people could be right in a disagreement, indicate that biases based on controversial moral beliefs are not driven solely by the perception that dissenters are wrong in an objective sense. This pattern is consistent with work showing that adolescents and adults prefer those who share their attitudes and opinions (Allen & Wilder, 1975; Byrne & Blaylock, 1963; Ullrich & Krueger, 2010). For example, similar opinions in one area (e.g., music) may serve as cues to similar opinions in other areas (e.g., similarity in values, such as how much people value change vs. conservation; Boer et al., 2011). Adults may infer that people who share some of their mental states (e.g., opinions, widely shared and controversial moral beliefs) also share other meaningful values and beliefs (e.g., concerning politics and religion), leading to the social preferences observed in the current work. Indeed, the current work suggests that greater liking for people who share one's beliefs may reflect preferences for those who are more similar to the self rather than preferences for those perceived to have the objectively right answer in a disagreement. This finding dovetails with other work pointing to the important role of relationships with others in adults' perceptions of widely shared and controversial moral beliefs (Heiphetz et al., in press).

### 5.3. Implications concerning moral learning and cognitive development

By testing children and adults in the same paradigm, the current research allowed us to investigate developmental changes over a long time course, between the preschool years and adulthood. Thus, in addition to contributing to the literatures on moral cognition and social preferences, the results of the current research enhance scientific understanding of cognitive development more broadly. The current work sheds light on aspects of development that are likely to depend at least in part on moral learning as well as aspects of development that do not depend on such learning.

This moral learning could take multiple forms. One possibility is that direct observations of moral diversity alter individuals' perceptions of moral disagreements. For example, older individuals have had more opportunity to interact with others who disagree with their moral beliefs and to observe the consequences of such disagreements. Noticing that reasonable people tend to disagree, especially about controversial moral beliefs, can lead to the conclusion that both people can be right. At the same time, experiencing the outcomes of such disagreements (e.g., one's favored candidate losing an election) can lead to stronger preferences for those who share one's own judgments.

A second possibility is that testimony leads to different perceptions of moral disagreements among children and adults. Prior work has pointed to the important role of testimony in a number of domains, including word learning (Corriveau, Fusaro, & Harris, 2009; Tenney, Small, Konrad, Jaswal, & Spellman, 2011), religious cognition (Harris, Pasquini, Duke, Asscher, & Pons, 2006), and scientific/factual information (Koenig & Jaswal, 2011; Ma & Woolley, 2013). Of most relevance to the current work, testimony may also influence moral cognition (Harris, 2012; Shweder, Mahapatra, & Miller, 1987). Adults may teach children to prefer those who share their moral beliefs (e.g., by expressing condemnation of those who disagree with their own views), leading children to

increasingly prefer those who agree with them across development. Although this possibility provides an intriguing hypothesis regarding a proximate form of moral learning, it cannot fully account for the presence of developmental differences, as it does not explain how early generations of adults came to acquire particular beliefs. Nevertheless, future work can tease apart the roles of direct observation and testimony in children's moral understanding.

Although children and adults in the present work were both more likely to report that only one person could be right in a disagreement about widely shared rather than controversial moral beliefs, children were more likely than adults to report that only one person could be right in any category where disagreement was plausible (i.e., controversial moral beliefs and opinions), suggesting that understanding of disagreement in general changes across development. This finding dovetails with numerous other research programs across multiple categories (e.g., opinion, religion, aesthetic judgments) showing that older children and adults accept disagreements more readily than do younger children (Flavell, Mumme, Green, & Flavell, 1992; Flavell et al., 1990; Heiphetz et al., 2013; Hofer & Pintrich, 1997; Kuhn et al., 2000). As they interact with a more diverse group of individuals and consider different perspectives, individuals appear to gain a different understanding of such disagreements.

#### 5.4. Limitations and future directions

As discussed in the preceding section, testing preschoolers and adults in the same paradigm offers several advantages, such as the ability to learn how perceptions of moral disagreements change or stay the same between childhood and adulthood. However, one limitation of this approach is the range of unsampled ages. The current data cannot speak to patterns of development between the preschool years and adulthood. For example, the difference in magnitude of social preference for those who share one's controversial moral beliefs may be linear, such that older children show stronger preferences than preschoolers but weaker preferences than adults. Alternatively, individuals may experience a "tipping point" that leads to a sudden increase in the strength of these preferences. Future work can test these possibilities.

A second potential limitation of the current work is its focus on American participants. Previous work (Beebe, Qiaoan, Wysocki, & Endara, 2015) has found similar levels of moral objectivism across diverse cultures (China, Poland, and Ecuador). However, this past work did not test preschoolers, and it is possible that young children's responses vary more than adults' responses as a function of their culture. Furthermore, different sub-cultures within the United States (e.g., liberal versus conservative sub-cultures) may hold different views regarding the objectivity of moral claims. These possibilities remain open for future testing.

## 6. Conclusions

Even at a young age, people respond differently to different types of moral beliefs. Widely shared moral beliefs, as compared with controversial moral beliefs, elicit more objectivism (operationalized in the current work as the perception that only one person can be right in a disagreement) and stronger preferences for people who share one's own beliefs. Although the difference between widely shared and controversial moral beliefs emerged among preschoolers as well as adults, adults showed stronger differences in objectivism between widely shared and controversial moral beliefs than did children. Furthermore, adults showed stronger preferences for those who shared their controversial moral beliefs than did children. Moral learning, such as that obtained via direct experience and testimony, may lead to reduced objec-

tivism and increased preferences for individuals who share one's controversial moral beliefs.

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## Appendix A. Study 1 Items

### Fact:

- Do you think that germs are smaller than people's houses or that people's houses are smaller than germs?
- Do you think that people get wetter when they are walking in the sunshine or when they are walking in the rain?

### Opinion:

- Do you think that it is more fun to play tag or hide and go seek? (children only)
- Do you think that it is more fun to play Monopoly or Scrabble? (adults only)
- Do you think that it is more fun to play with your friends outside or inside? (children only)
- Do you think that it is more fun to spend time with your friends outside or inside? (adults only)

### Widely shared moral:

- Do you think that it is better to draw someone a picture or to call someone a name?
- Do you think that it is worse to pull someone's hair or to share with someone? [Study 2 participants were asked which behavior was better]

### Controversial positive moral:

- Do you think that it is better to make cookies for someone or to help someone with a project?
- Do you think that it is better to clap for someone or to invite someone to a party?

### Controversial negative moral:

- Do you think that it is worse to spit at someone or to slap someone's face?
- Do you think that it is worse to stomp on someone's foot or to hit someone?

## Appendix B. Study 3 Stimuli

### Widely shared moral:

- One day, Liam is in a terrible mood. Nothing is going right for him and he is upset with everyone just because he is having a bad day. One day at recess, Liam sees Bill playing on the playground. Should Liam go play a game with Bill, or should Liam spit in Bill's face?



- Noah has brown hair, but he really wishes he had blonde hair. Noah doesn't like people who have blonde hair because he is jealous. One day, Noah sees Oliver walking to school. Oliver has blonde hair. Should Noah pull Oliver's hair as hard as he can, or should Noah tell Oliver how much he likes Oliver's hair?
- Charlotte and Emily live next door to each other. Emily has never done anything to hurt Charlotte, but Charlotte still really doesn't like Emily. One day Charlotte and Emily are waiting for the school bus together. Should Charlotte stomp on Emily's foot really hard, or should Charlotte help Emily carry her books on to the bus?
- Jane's family is poor. Her clothes are old and torn because her family doesn't have money to buy new clothes. Jane feels bad that her clothes aren't as nice as the ones her friend Annie wears. Should Annie give Jane some new clothes, or should Annie make fun of Jane for wearing old clothes?

#### Controversial moral:

- For Sarah's birthday, Sarah's aunt gave her a scarf. Sarah doesn't like the scarf because it's scratchy. A few weeks after her birthday, Sarah's aunt asks Sarah whether she likes the scarf. Should Sarah make her aunt sad by telling the truth, or should Sarah lie to her aunt to make her aunt happy?
- Brian is a bully who likes hurting people. One day, Brian sees Paul playing outside. Brian runs toward Paul shouting, "I am going to pummel you!" while swinging his fists. Should Paul try talking with Brian and maybe get hurt, or should Paul make sure Brian can't hurt him by punching Brian in the face?
- Violet's mother is very sick. Her family does not have the money to buy the medicine she needs, and Violet's mother will get sicker unless she takes the medicine soon. Should Violet help her mother get better by stealing the medicine, or should Violet not steal the medicine and watch her mother get sicker?
- David is playing outside when he sees Mike riding his bike. Mike is not a good bike rider and is about to run into another person. Should David make sure Mike can't hurt anyone by pushing Mike off of his bike, or should David keep playing while Mike hits the other person with his bike?

#### Appendix C. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.cognition.2016.05.014>.

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