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Children's developing metaethical judgments

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ABSTRACT

Human adults incline toward moral objectivism but may approach things more relativistically if different cultures are involved. In this study, 4-, 6-, and 9-year-old children (N = 136) witnessed two parties who disagreed about moral matters: a normative judge (e.g., judging that it is wrong to do X) and an antinormative judge (e.g., judging that it is okay to do X). We assessed children's metaethical judgment, that is, whether they judged that only one party (objectivism) or both parties (relativism) could be right. We found that 9-year-olds, but not younger children, were more likely to judge that both parties could be right when a normative ingroup judge disagreed with an antinormative extraterrestrial judge (with different preferences and background) than when the antinormative judge was another ingroup individual. This effect was not found in a comparison case where parties disagreed about the possibility of different physical laws. These findings suggest that although young children often exhibit moral objectivism, by early school age they begin to temper their objectivism with culturally relative metaethical judgments.

Introduction

Children are born into a world full of human-made laws (e.g., moral or conventional norms) and natural laws (e.g., gravity) and start to make sense of them descriptively during infancy

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(Baillargeon, Li, Gertner, & Wu, 2011; Dahl & Tran, 2016; Diesendruck & Markson, 2011; Hamlin, 2013; Schmidt & Sommerville, 2011). During early childhood, children proactively infer, construct, and reason about human-made norms (Göckeritz, Schmidt, & Tomasello, 2014; Kalish, 1998; Killen & Smetana, 2015; Schmidt, Butler, Heinz, & Tomasello, 2016; Schmidt, Rakoczy, Mietzsch, & Tomasello, 2016; Schmidt & Tomasello, 2012; Turiel, 1983). And regarding prototypical moral norms (e.g., pertaining to the welfare of agents), research suggests that preschoolers apply these rather universally, treat them as unchangeable entities, and regard moral violations as more severe than conventional transgressions (Dahl & Kim, 2014; Killen & Smetana, 2015; Schmidt, Rakoczy, & Tomasello, 2012; Turiel, 1983; Turiel & Dahl, 2016).

These early normative attitudes toward others' actions, however, pertain to first-order normative judgments—that is, judging actions and intentions as right or wrong according to a certain standard or norm (Schmidt & Rakoczy, in press). In the current study, we investigated children's developing capacity to make judgments *about* such first-order judgments (e.g., "Xing is wrong!") in contexts of disagreement, that is, *second-order judgments* about whether only one person or two persons can be right about an issue on which they disagree. We focused on moral issues and accordingly call second-order judgments about first-order moral judgments *metaethical judgments* (Smith, 1994).[1] As a comparison case, we investigated second-order judgments about first-order judgments about the possibility of physical law violations.

Objectivism and relativism

In everyday social interactions, children and adults experience disagreement about many issues. Thus, we not only judge things to be right or wrong but also think about those normative judgments themselves. It is impossible to do justice to the variety of different theories from the philosophical landscape, but a common distinction is whether people hold an objectivist or relativist view about some state of affairs (Harman, 1975; Mackie, 1977; Nagel, 1986; Roughley, 2004; Smith, 1994). An objectivist position holds that there is a single truth or fact of a matter independent of opinion, such that only one person can be right in cases of disagreement. For example, if two individuals disagree about whether the earth is flat, an objectivist would judge that one of them must be correct and the other one must be wrong. Similarly, if people disagree about whether torture is a legitimate means to gain information that might help save human lives, an objectivist position would hold that only one person can be right about this moral issue. A relativist position, however, holds that there can be more than one "truth" about a matter because judgments must be understood relative to a person's circumstances (e.g., values, culture, preferences), such that two persons can be right at the same time in cases of disagreement. For example, if two individuals disagree about whether one should use a fork and knife or chopsticks to eat food, a relativist position would be to judge that both persons can be right because there is no single truth about what cultural artifacts to use to eat food. Hence, the distinction between objectivism and relativism boils down to being committed to believing in a single truth or in more than one truth when there are conflicting judgments about the rightness or possibility of an action.

Children's developing objectivist and relativist attitudes

Most developmental research focused on children's first-order judgments in interviews and in social interactions (e.g., protesting norm violations). This work could be taken to suggest that from early childhood to young school age, children hold rather objectivist attitudes toward moral norms and physical laws, understanding them as universal, unchangeable, inviolable, and rather mind independent (Kalish, 1998; Komatsu & Galotti, 1986; Nicholls & Thorkildsen, 1988; Piaget, 1932; Schmidt et al., 2012; Turiel, 1983). However, there is also evidence that young school-aged children are more

[1] Metaethics is a field of philosophical inquiry. Metaethicists aim to understand a range of semantic, metaphysical, psychological, and epistemological questions that are closely connected to the practice of making moral judgments rather than addressing moral issues themselves. The primary target of this study was the ontogeny of "folk" metaethical judgments, that is, children's metaethical intuitions.

willing to believe that physical laws might be different in an extraterrestrial world than on the earth and that some physical laws (gravity) can be changed (Komatsu & Galotti, 1986; Lockhart, Abrahams, & Osherson, 1977).

None of these studies, however, assessed children's second-order judgments and, thus, did not directly test for objectivist versus relativist attitudes as of interest here. More relevant for the current purposes are a few studies that looked at children's reasoning about disagreement. The findings from these studies suggest that (a) preschoolers and early school-aged children judge that only one person can be right in cases of disagreement about moral issues (e.g., whether it is okay to hit others) and physical issues (e.g., whether objects naturally go up or fall down) (Wainryb, Shaw, Langley, Cottam, & Lewis, 2004), (b) preschoolers judge moral properties (e.g., good or bad) to be independent of people's preferences and, thus, as objective (Nichols & Folds-Bennett, 2003), and (c) early school-aged (and older) children find it unacceptable if others hold, and act on, divergent moral (i.e., "immoral") beliefs (Wainryb, Shaw, Laupa, & Smith, 2001). In a recent study by Heiphetz and Young (2017), 4- and 6-year-old children reasoned about others' disagreement and expressed more objectivist attitudes (i.e., only one person can be right) toward uncontroversial moral disagreements (e.g., whether it is better to harm someone vs. to share with someone) than toward disputed moral disagreements (e.g., whether it is better to help someone in one context vs. another context) and, thus, treated common moral judgments more like judgments about objective facts (Heiphetz, Spelke, Harris, & Banaji, 2013). Moreover, children in Heiphetz and Young's (2017) study were more objectivist than adults, and there was some indication (albeit not consistent across comparisons and experiments) that 4-year-olds were more objectivist than 6-year-olds.

In all of the reported studies, however, children faced a disagreement between people who shared a sociocultural background, group membership, traditions, and values. An important theoretical, but also practical, question is, however, whether our metaethical judgments vary depending on the parties involved in a moral disagreement. Are we more willing to accept several "moral truths" when the parties who disagree are deeply dissimilar? A recent finding with adults suggests that the more culturally distant an individual making an antinormative judgment (e.g., harming others is okay) is from an ingroup individual making a normative judgment (e.g., harming others is wrong), the more people tend to express relativist attitudes toward moral disagreements between these two parties (Sarkissian, Park, Tien, Wright, & Knobe, 2011). For instance, people are more relativist in the context of a moral disagreement between an ingroup individual and an outgroup individual with different traditions and values as compared with a moral disagreement between two ingroup individuals, and people are yet more relativist when an ingroup individual and an imagined extraterrestrial individual with no interest in friendship or love disagree about a moral matter.

Metaethical judgment as a complex social-cognitive "skill"

Thus, while prior research found that there is developmental continuity and stability in children's moral objectivism in cases of moral disagreement between similar agents, it is an open question whether and when children develop a flexible, context-relative moral relativist stance that would lead them to form more relativist metaethical judgments about conflicting moral judgments coming from people who are deeply dissimilar. The answer to this question is important not only for understanding children's developing folk metaethics per se but also for determining the age range in which children start to reason about both the disagreement and the features and sociocultural background of the disagreeing parties. This complex skill most likely requires what one might call "sociocultural perspective taking," which is based on, but goes beyond, understanding the subjectivity of individual perspectives (Perner & Roessler, 2012; Wellman, Cross, & Watson, 2001; Wimmer & Perner, 1983) and involves, for instance, considering others' group membership, ethnicity, social relationships, and preferences and develops between 6 and 11 years of age (Abrams, Rutland, Pelletier, & Ferrell, 2009; Rutland, Killen, & Abrams, 2010). In particular, sociocultural perspective taking may help children to not only understand that there may be conflicting perspectives on some state of affairs (Perner & Roessler, 2012) but also reflect on the origin and circumstances of the seemingly "odd" perspective, namely, the antinormative judgment. Moreover, the ability to consider normative reasons as opposed to merely idiosyncratic or circular reasons may be important for context-relative moral relativism

because only normative reasons can justify (and generalize) a judgment, thereby making it "true" from a particular perspective. Recent research suggests that by 8 years of age children differentiate between normative reasons and idiosyncratic reasons (e.g., accepting resource inequality more when backed by normative reasons) and that younger children tend to accept both idiosyncratic and circular reasons as "good" justifications or explanations (Mercier, Bernard, & Clément, 2014; Schmidt, Svetlova, Johe, & Tomasello, 2016).

Preschoolers may lack sophisticated sociocultural perspective-taking skills, but they do modulate their attitudes and behavior in intergroup contexts, thereby showing ingroup favoritism (Aboud, 2003; Dunham, Baron, & Carey, 2011; Fehr, Bernhard, & Rockenbach, 2008). When an intergroup context involves third-party violations of moral norms (pertaining to fairness or the well-being of others), however, preschoolers tend to focus on the content of the norm (e.g., endorsing fairness and protesting against immoral actions), thereby not taking a group perspective or relativizing an outgroup individual's immoral behavior (Cooley & Killen, 2015; Schmidt et al., 2012). Between early preschool and early school age, then, children start to become more sensitive to issues of group loyalty, group functioning, and ingroup conformity (Abrams, Palmer, Rutland, Cameron, & Van de Vyver, 2014; Cooley & Killen, 2015; Misch, Over, & Carpenter, 2014), but they still favor moral behavior independent of group membership (Abrams, Rutland, Ferrell, & Pelletier, 2008). All of this research involved first-order issues (e.g., evaluations of others' immoral behavior) and, thus, does not directly pertain to our questions of folk metaethical judgment. Nevertheless, it seems reasonable to suggest that young preschoolers would express strong objectivist attitudes independent of who the parties of a moral disagreement are (in particular, if the disagreement is about uncontroversial moral beliefs; Heiphetz & Young, 2017) and that this objectivist stance might become more flexible and context sensitive with children's growing sensitivity of intergroup issues and abilities to engage in sociocultural perspective taking and consider normative reasons.

The current study

We investigated the development of children's objectivist and relativist attitudes toward others' moral (and physical) disagreement by assessing children's second-order judgment, that is, whether they think that only one party or two parties can be right about a moral (or physical) issue. We adapted Sarkissian et al.'s (2011) paradigm, used child-appropriate scenarios and materials, and had 4-, 6-, and 9-year-old children and two *judges* (puppets) watch a series of video clips depicting two *actors* (puppets), one of whom intended to violate either a *moral norm* or a *physical law*. Then, children witnessed the two judges making opposite (first-order) judgments about the rightness (moral norms) or possibility (physical laws) of the actor's intention to violate the norm; the *normative judge* was always an ingroup member (a human-like puppet "from the child's local area") who disapproved of the intention to violate the norm, and the *antinormative judge* was either another ingroup member or an extraterrestrial individual (a worm-like puppet) who approved of the intention to violate the norm.

In a mixed design, we manipulated the identity of the antinormative judge between participants (*judge identity:* ingroup vs. extraterrestrial) and the following variables within participants: the identity of the actors (*actor identity:* ingroup vs. extraterrestrial) and the *type of violation* (moral vs. physical). We chose to contrast the ingroup judge not with an outgroup judge (e.g., from another culture) but rather with an extraterrestrial judge because this comparison yielded the strongest results in adults (Sarkissian et al., 2011) and this is, to our knowledge, the first developmental investigation of context-sensitive enhanced moral relativism.

With respect to actor identity, the puppets in the video clips were introduced to the children as either ingroup puppets from the same city with typical preferences (e.g., going to the playground and playing with others) or extraterrestrial puppets from a different planet where people have different preferences (e.g., eating grass, not sleeping, not living in houses). As for the type of violation, the actors in the clips announced to either commit a moral transgression (i.e., harming another puppet or destroying the puppet's property) or perform an action that would violate physical laws (i.e., transforming an inanimate object into an animate one or creating an object out of thin air). After children watched each clip and listened to the two judges, we asked children a couple of questions. First, we

asked children which judge was right so as to have children align with one of the judges based on their own normative judgment about the actor's intended action and to assess whether the clear majority of children would side with the normative judge.[2] Second, we asked children to consider whether only one of the judges could be right (objectivist attitude) or whether both judges could be right (relativist attitude). And third, using a supplementary Likert scale measure, we had children estimate the extent to which they thought their second-order judgment was possible as an indicator of how certain children were about their second-order judgment. Theoretically, it is an important question whether there are different developmental trajectories of children's certainty in their objectivist and relativist attitudes. For instance, do children become more certain about their objectivist metaethical judgments with age, and how certain are children when expressing relativist attitudes, which are arguably not the "default" position?

Overall, we expected children at all ages to express objectivism (judging that "only one can be right") for both types of violation. However, we also predicted that 9-year-olds would express enhanced moral relativism (judging that "both can be right") for moral disagreement between a normative ingroup judge and an antinormative extraterrestrial judge as compared with moral disagreement between a normative ingroup judge and an antinormative ingroup judge (hereafter, we label these conditions "extraterrestrial judge condition" and "ingroup judge condition"). For younger children, our hypothesis was that they would not differentiate between these different types of moral disagreement. We nevertheless included both 4- and 6-year-olds in the current study because (a) there is some indication that 4-year-olds are more objectivist than 6-year-olds (Heiphetz & Young, 2017), (b) children's perspective-taking skills develop considerably from preschool to early school age (Perner & Roessler, 2012), and (c) we attempted to gain a more thorough picture of the developmental trajectory of children's metaethical judgment. Moreover, we sought to explore whether, similar to findings in adults (Sarkissian et al., 2011), children's metaethical judgment would be independent of the identity of the actors (ingroup or extraterrestrial) who intended to commit moral violations. Regarding children's second-order judgment about the possibility of physical law violations, we predicted, based on prior research on children's reasoning about disagreement (Wainryb et al., 2004), that children at all ages would not show enhanced relativism for the extraterrestrial judge condition versus the ingroup judge condition. Note that the reported research on children's first-order judgment (Komatsu & Galotti, 1986; Lockhart et al., 1977) does not pertain to our questions of second-order judgment (objectivism vs. relativism) because one could believe that physical laws might be different on another planet but nevertheless judge that there is only one truth (whether "alterable" or not) when people disagree about a physical matter in a specific context.

Method

Participants

In total, 136 children participated in the study: forty-eight 4-year-olds (M = 53.3 months, range = 49–56; 23 girls), forty 6-year-olds (M = 76.51 months, range = 73–79; 21 girls), and forty-eight 9-year-olds (M = 112.73 months, range = 109–116; 24 girls). Children were recruited via urban day-care centers and schools (in which testing took place) and came from mixed socioeconomic backgrounds from a mid-size German city. Parents provided written informed consent. An additional 12 children were tested but excluded from the final sample due to experimenter error (n = 9), equipment malfunction (n = 1), or uncooperativeness (n = 2).

[2] Note that the normative alignment with one of the judges could also be considered second order because it is a judgment about the judges' judgments about an intended action. However, this normative alignment is most likely based on children's own (first-order) normative judgment about the situation, in particular, when the vast majority of children side with the normative judge. In this article, we reserved the term "second-order judgment" for the hypothetical metajudgment of whether only one judge or both judges can be right.

Design

In a mixed design, we manipulated the antinormative judge's identity (ingroup or extraterrestrial) between participants and manipulated actor identity (ingroup or extraterrestrial) and type of violation (moral or physical) within participants. Children were randomly assigned to one of the two between-participants conditions. All children watched eight video clips in total: four moral clips (two with ingroup actors and two with extraterrestrial actors) and four physical clips (two with ingroup actors and two with extraterrestrial actors). For each type of violation, there were two different clips depicting intended violations. For each clip, there was one version depicting ingroup actors and another version depicting extraterrestrial actors, resulting in eight different clips (see also Table 1). The order of type of violation was alternated on every two trials (e.g., two moral clips followed by two physical clips), with half of the participants receiving moral clips first. Actor identity was varied blockwise (e.g., four trials with ingroup actors followed by four trials with extraterrestrial actors), with half of the participants receiving ingroup actors first. On each trial, the order of questions asked was constant, and we counterbalanced (between participants) the order of "both" and "one" in the question about children's second-order judgment ("Can only *one* [of them] be right, or can *both* be right?" and "Can *both* be right, or can only *one* [of them] be right?"; see "Procedure" section for details).

Materials

In the warm-up and training session, two human-like puppets of approximately 50 cm each, one wooden stand with a quadratic base for the puppets, a ball, six A4-size (roughly U.S. letter-size) cards depicting ordinary items (a cup of ice cream, a children's ABC cube, a piece of broccoli, a cap, a piece of chocolate, and a Hawaiian shirt), a 4-point Likert scale with smiley faces, and a craft foam sheet to occlude the scale were used. In the experimental task, a laptop (used to display the clips), three different puppets (two human-like puppets and one worm-like puppet that played the role of extraterrestrial puppet), the 4-point Likert scale, and the craft foam sheet occluder were used. Eight clips depicting the transgressions (Table 1) were recorded using a high-definition camera. For these clips, four puppets different from the ones used in the experimental task were used (i.e., two human-like puppets and two worm-like puppets that played the role of extraterrestrial puppets).

Procedure

Two experimenters conducted the study; Experimenter 1 (E1) led the session, and Experimenter 2 (E2) controlled the hand puppets. The role of the puppets was fixed. The puppets "Max" (ingroup), "Tom" (ingroup), and "Bontakon" (extraterrestrial) were the judges. Max was the normative judge, whereas Tom and Bontakon were antinormative judges. The child, E1, and E2 sat at a child-friendly table. First, the child participated in a warm-up and training session with two separate warm-up puppets ("Nina" and "Kurt"). The purpose of these sessions was twofold. First, we sought to familiarize the child with interacting with puppets. Second, we sought to familiarize the participant with the structure of the experimental task in a different context (disagreement about preferences), that is, witnessing disagreement, making normative and second-order judgments, and using the Likert scale.

In the warm-up phase, the child and the two warm-up puppets controlled by E2, and E1 played with a ball for approximately 2 min. Next, in the training phase, E1 showed the child and the two warm-up puppets six pictures displaying ordinary items (see "Materials" section). E1 noted that the two puppets are always in disagreement. Then, after having identified the item (e.g., "Oh, it's ice cream!"), the two puppets judged it according to their preferences (e.g., "Ice cream tastes good!" and "Ice cream doesn't taste good!"). E1 then proceeded to explain who she thought was right, made a second-order judgment, and modeled the use of the 4-point Likert scale by saying how much she thought that one (or both) of them could be right and pointing to the respective smiley face (i.e., *not at all, a little, a little more,* or *completely*). The following responses were modeled by E1: (a) only one can be right and E1 was completely certain about it (ice cream); (b) both can be right and E1 was completely certain about it (cubes); (c) only one can be right, but E1 was only a little certain about it (broccoli); and (d) both can be right, but E1 was only a little certain about it (hat). After these four

Table 1
Overview of clips used in experimental task.

Moral violation		Physical violation	
Clip 1	Clip 2	Clip 1	Clip 2
Two actor puppets are making drawings. When one of the puppets has finished, the other puppet takes the drawing and says, "I'm going to tear her drawing up!"	One actor puppet is reading a book. Another puppet approaches the reading puppet with a grasping gesture and says, "I'm going to pull her hair very strongly!"	One actor puppet takes a stone and points out, "This is a stone." Another puppet approaches the stone with a grasping gesture and says, "I'm going to transform this stone into a real elephant!"	Pointing to a bottle, one of the actor puppets points out, "This is an empty bottle." Another puppet approaches a glass, takes the bottle, says "I'm going to pour milk into this glass from this bottle!", and starts to tilt the bottle (well below a 90-degree angle)

Note. The actor puppets in the clips were either ingroup (four clips) or extraterrestrial (four clips) individuals. In all of the clips, the transgressor started to perform the intended action (i.e., taking the drawing, approaching the reading puppet, approaching the stone, or taking the bottle), but the clips stopped just before the transgressor actually carried out the immoral or impossible action; that is, the outcome of the action was not shown.

demonstrations, E1 asked the child to give his or her own opinion. Thus, for the last two pictures, the child was asked three questions (see Table 2) as in the experimental task after witnessing the puppets' disagreement about preferences.

Introduction to the experimental task

After the training phase, the child was introduced to the three judges (two ingroup judges and one extraterrestrial judge) in both conditions. The human-like puppets were introduced to the child as puppets from the local area, whereas the extraterrestrial puppet was introduced as a puppet from another planet very far way called "Noxo."[3] Then, E1 explained to the child that people from that planet are different from "us" and that, unlike us, they like to eat grass, hate ice cream, do not live in houses, and do not sleep. Depending on the between-participants condition, one antinormative puppet (Tom or Bontakon) then left, so that in the (antinormative) ingroup judge condition children remained with Tom and Max, whereas in the (antinormative) extraterrestrial judge condition children remained with Bontakon and Max. The position of the antinormative puppet was fixed (on E2's right hand and, thus, closer to the child than the normative puppet). Table 2 gives an overview of the forced-choice questions asked by E1 and the dependent measures recorded.

Experimental task

E1 invited the child and the two judges to watch some clips on a laptop that E1 placed on the table. Each clip stopped just before the transgression was committed, and a still image of the last frame of the clip was displayed in the experimental task on each trial. Then, the judges commented on the clips. Both of them first acknowledged the intention of the transgressor actor puppet in the clip. The normative puppet (Max) stated that the action was wrong for moral violations (e.g., "She is going to tear up the other one's drawing. That is wrong!") or impossible for physical violations (e.g., "She is trying to transform that stone into a real elephant. That doesn't work!"). The antinormative puppet (Tom or Bontakon), however, judged that the action was okay for moral violations (e.g., "Yes, she is going to tear up the other one's drawing. That's okay!") or possible for physical violations (e.g., "She is trying to transform that stone into a real elephant. That works!"). Then, as described in Table 2, E1 asked for the child's (a) normative alignment judgment (henceforth "normative judgment"), (b) second-order judgment (order of "one" and "both" counterbalanced between participants), and (c) estimation (using the Likert scale) of the extent to which it is possible that only one or both can be right, depending on the child's second-order judgment.

[3] In German, the word "Stern" can refer to both planets and stars. We chose this wording because it seems more child friendly than the more technical term "Planet."

Table 2
Forced-choice questions and response options for video clips.

Forced-choice question	Response options
1. Normative (alignment) judgment: "In this case, who is right?"	Normative/Antinormative/ (Both)
2. Second-order judgment: "What do you think, can only *one* [of them] be right, or can *both* be right?"	Only one/Both
3a. If the child answered that only one can be right: "And what do you think, how much [is it possible] that only one of them can be right?"	4-point Likert scale (not at all/a little/a little more/completely)
3b. If the child answered that both can be right: "And what do you think, how much [is it possible] that both of them can be right?"	

Note. For the third question, the German phrase we used ("wie sehr geht das") may be translated as "how much is it possible" or "how much does it work." In some trials, children responded "both" to the first question (see Results section); thus, we included this option above in parentheses.

Coding and measures

All sessions were recorded and coded from videotape by a single observer. A second independent observer, blind to the hypotheses and conditions of the study, coded a random sample of 20% of all sessions for reliability.

Children's responses to the forced-choice question (normative judgment) were behavioral (e.g., pointing to one of the puppets) or verbal (e.g., "Max") and were coded as "normative," "antinormative," or "both," depending on children's response and the role of the chosen puppet. For each trial (video clip), children received the corresponding code. Reliability was very good (Cohen's $\kappa = 1.0$).

The second-order judgment forced-choice question provided eight observations per child. For each trial, children received a binary score: a 0 if they responded that only one puppet can be right (objectivist response) or a 1 if they responded that both puppets can be right (relativist response). Reliability was very good (Cohen's $\kappa = 1.0$). Lastly, for each trial, we coded children's responses on the Likert scale by converting them into numerical values: 1 = *not at all*, 2 = *a little*, 3 = *a little more*, and 4 = *completely* (Cohen's $\kappa = .99$). For the purposes of analyses, the values were averaged for each child to compute a mean score of children's certainty about their objectivist (only one puppet can be right) or relativist (both puppets can be right) second-order judgment.

Statistical analysis

Statistical analyses were run in R (Version 3.3.2; R Core Team., 2016). For the binary outcome variable (children's second-order judgment) we used generalized linear mixed models (GLMMs) with binomial error structure and logit link function, and for the Likert measure (mean score = 1–4) we used (general) linear mixed models (LMMs) with Gaussian error structure and identity link function. Mixed models allow for the inclusion of both fixed and random effects (Baayen, 2008; Bates, Maechler, Bolker, & Walker, 2015). To account for the non-independence of the data (i.e., repeated observations per child), we included participant as a random effect to allow intercepts to vary across participants. Further random effects included were the random slopes of within-participants predictors (actor identity and type of violation) by participant to allow subjects to vary with respect to these predictors.

Our analytic approach was as follows. First, the combined significance of the predictor variables (i.e., main and all interaction effects of age, judge identity, actor identity, and type of violation) was tested by comparing the fit of the full model (including the predictor variables, control variables, and random effects) with the fit of a null model that contained only the control variables and the random effects using a likelihood ratio test (Dobson, 2002). Control variables were gender, trial order (z-transformed), and question order (both or only one). Second, in case this full-null model comparison was significant, we tested for specific effects separately for each type of violation given that we had differential predictions for moral versus physical violations. We did so by comparing the fit of a full model (including the predictor variables of interest, the control variables, and the random effects of participant and the random slope of actor identity) with the fit of a reduced model that did not contain the predictor of interest using a likelihood ratio test. We first tested for the highest order interaction

effect (age, judge identity, and actor identity) and then tested for further effects of interest based on our hypotheses. The full-null model comparison was significant. All control variables were kept in the models to control for confounding effects. The approach of testing the overall full model against a null model helps to protect against Type I error inflation arising from models comprising more than one predictor variable (Forstmeier & Schielzeth, 2011). Unstandardized parameter estimates (b), standard errors, 95% confidence intervals (CIs), and odds ratios (ORs) were obtained from the respective full model.

Results

Regarding normative judgments ("Who's right?"), children showed the same pattern for both types of violation (moral and physical), siding with the normative judge in the majority of trials (moral, 85.7%; physical, 71.9%), and with the antinormative judge (moral, 10.7%; physical, 19.5%) or with both judges (moral, 3.7%; physical, 8.6%) in the minority of trials. The 4-year-olds sided with the normative judge in 63.8% of trials (moral, 69.3%; physical, 58.3%), with the antinormative judge in 32.3% of trials (moral, 27.1%; physical, 37.5%), and with both judges in 4% of trials (moral, 4%; physical, 4.2%). The 6-year-olds sided with the normative judge in 91.9% of trials (moral, 96.9%; physical, 86.9%), with the antinormative judge in 4.1% of trials (moral, 1.2%; physical, 6.9%), and with both judges in 4.1% of trials (moral, 1.9%; physical, 6.3%). And the 9-year-olds sided with the normative judge in 82.8% of trials (moral, 92.7%; physical, 72.9%), with the antinormative judge in 7% of trials (moral, 2.1%; physical, 12%), and with both judges in 10.2% of trials (moral, 5.2%; physical, 15.1%). Given that a considerable proportion of children's normative judgments (in particular, those of 4-year-olds) was not "normative" (e.g., siding with the antinormative judge), we sought to also control for children's normative judgment when finding significant effects of judge identity for children's second-order judgment within each age group.

Children's metaethical judgment about moral disagreement

Fig. 1 depicts children's mean proportion of relativist responses for each age group as a function of judge identity and actor identity. We first ran GLMMs on children's responses to the forced-choice metaethical question (only one vs. both). There was no significant three-way interaction of age, judge identity, and actor identity, $\chi^2(2) = 0.94$, $p = .62$, and no significant two-way interactions of age and judge identity, $\chi^2(2) = 2.39$, $p = .30$, or of age and actor identity, $\chi^2(2) = 0.41$, $p = .81$.

Our main predictions were that younger children's metaethical judgment would be independent of the type of moral disagreement and that 9-year-olds would express more relativism toward an intergroup moral disagreement (normative ingroup judge vs. antinormative extraterrestrial judge) than toward an ingroup moral disagreement (normative ingroup judge vs. antinormative ingroup judge). Thus, we tested for the effect of judge identity separately for each age group, and these planned comparisons revealed that 4-year-olds did not differentiate between the ingroup judge condition and the extraterrestrial judge condition in their metaethical judgment, $\chi^2(1) = 0.77$, $p = .38$, $b = 1.36$, $SE = 1.57$, CI [−1.72, 4.44], $OR = 3.89$. Similarly, 6-year-olds were rather objectivist in both conditions, $\chi^2(1) = 0.28$, $p = .60$, $b = 0.47$, $SE = 0.89$, CI [−2.21, 1.28], $OR = 1.60$. However, as predicted, 9-year-olds, were more relativist in the extraterrestrial judge condition than in the ingroup judge condition, $\chi^2(1) = 6.45$, $p = .011$, $b = 3.17$, $SE = 1.24$, CI [0.74, 5.60], $OR = 23.76$. This effect held when controlling for 9-year-olds' normative judgment, $\chi^2(1) = 7.27$, $p = .007$, $b = 2.37$, $SE = 1.08$, CI [0.24, 4.49], $OR = 10.65$.

Children's second-order judgment about physical possibility disagreement

Fig. 2 depicts children's mean proportion of relativist responses for each age group as a function of judge identity and actor identity. We first ran GLMMs on children's responses to the forced-choice second-order question about physical possibility (only one vs. both). There was no significant three-way interaction of age, judge identity, and actor identity, $\chi^2(2) = 0.72$, $p = .70$, and no significant

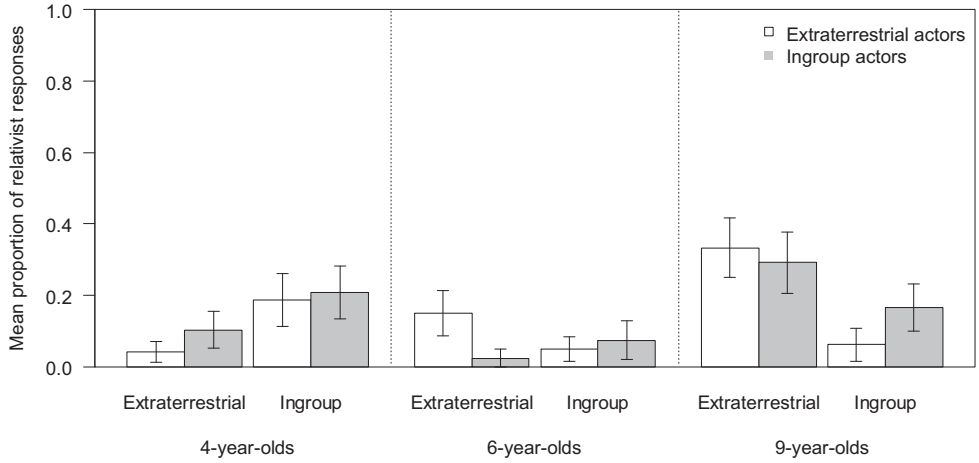

Fig. 1. Mean proportions of relativist responses ("both can be right") about moral disagreement as a function of age, judge identity, and actor identity. Error bars indicate ±1 standard error of the mean.

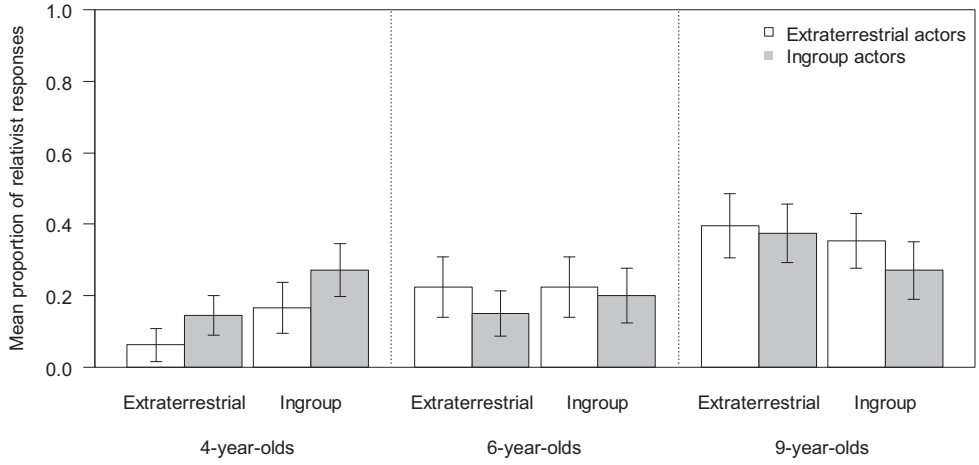

Fig. 2. Mean proportions of relativist responses ("both can be right") about physical possibility disagreement as a function of age, judge identity, and actor identity. Error bars indicate ±1 standard error of the mean.

two-way interaction of age and judge identity, $\chi^2(2) = 2.56$, $p = .28$, but there was a significant interaction of age and actor identity, $\chi^2(2) = 9.32$, $p = .01$.

Our main prediction was that across age, children's second-order judgment about physical possibility disagreement would be independent of the antinormative judge's identity. Thus, we tested for the effect of judge identity separately for each age group and found that 4-year-olds' second-order judgment was not affected by whether the youngest age group faced an (antinormative) ingroup judge or an extraterrestrial judge, $\chi^2(1) = 2.09$, $p = .15$, $b = 1.0$, $SE = 0.73$, CI [−0.43, 2.43], $OR = 2.72$. Similarly, 6-year-olds' second-order judgment was independent of judge identity, $\chi^2(1) = 0.07$, $p = .80$, $b = 0.46$, $SE = 1.79$, CI [−3.05, 3.96], $OR = 1.58$, and 9-year-olds' second-order judgment was not affected by judge identity either, $\chi^2(1) = 0.54$, $p = .46$, $b = 0.50$, $SE = 0.68$, CI [−0.83, 1.82], $OR = 1.64$. As indicated by the significant interaction of age and actor identity, 4-year-olds were more relativist for ingroup actors than for extraterrestrial actors, $\chi^2(1) = 13.16$, $p < .001$, $b = 8.22$, $SE = 2.59$, CI [3.16, 13.29],

OR = 3731.55, but neither 6-year-olds nor 9-year-olds made a difference between ingroup and extraterrestrial actors, $\chi^2(1) = 0.001$, $p = .97$, $b = 0.22$, $SE = 3.07$, CI [−5.80, 6.24], $OR = 1.24$, and $\chi^2(1) = 0.18$, $p = .67$, $b = 0.22$, $SE = 0.51$, CI [−0.77, 1.21], $OR = 1.24$, respectively.

Children's relativist responses compared with chance

We assessed for each age group, per levels of judge identity (ingroup or extraterrestrial) and type of violation (moral or physical), whether children's proportion of relativist responses differed significantly from chance level (.50), expecting children to predominantly express objectivism. Thus, 12 exact one-sample Wilcoxon signed-rank tests were computed, and the Bonferroni-corrected significance level was at $p = .004$. All comparisons were significantly below chance, $ps < .0016$, $r_{equivalent}$ values > .62, except for the following: 9-year-olds for moral disagreement in the extraterrestrial judge condition, $T^+ = 54$, $p = .03$, $r_{equivalent} = .43$, 9-year-olds for physical possibility disagreement in both the ingroup judge condition, $T^+ = 31.5$, $p = .02$, $r_{equivalent} = .47$, and the extraterrestrial judge condition, $T^+ = 57$, $p = .21$, $r_{equivalent} = .26$. Thus, overall, children at all ages predominantly expressed objectivist attitudes for both types of violation with mean proportions well below .40 (see Figs. 1 and 2), but in line with the above findings, 9-year-olds did not express objectivism in absolute terms when facing moral disagreement including an antinormative extraterrestrial judge.

Children's estimation of the extent to which their second-order judgment is possible

We first ran an LMM on children's estimation (mean score = 1–4) of the extent to which their second-order judgment (only one vs. both) was possible and tested for the three-way interaction of age, second-order judgment (only one vs. both), and type of violation, which was nonsignificant, $\chi^2(2) = 1.51$, $p = .47$. Next, we tested for the two-way interaction effects of age and second-order judgment and of age and type of violation and found no significant interaction of age and type of violation, $\chi^2(2) = 0.87$, $p = .64$, but a significant interaction of age and second-order judgment, $\chi^2(2) = 53.13$, $p < .001$. Thus, whereas children estimated their objectivist second-order judgments as more possible with age (4-year-olds: $M = 3.00$, $SD = 0.83$; 6-year-olds: $M = 3.37$, $SD = 0.77$; 9-year-olds: $M = 3.55$, $SD = 0.46$), 4-year-olds tended to estimate their relativist second-order judgments as more possible than older children (4-year-olds: $M = 3.03$, $SD = 1.01$; 6-year-olds: $M = 2.76$, $SD = 0.71$; 9-year-olds: $M = 2.64$, $SD = 0.49$).

Discussion

This study investigated children's developing objectivist and relativist attitudes toward others' disagreement about moral and physical laws. We assessed children's second-order judgment about others' conflicting first-order judgments, that is, children's judgment about whether only one party or both parties of a disagreement can be right. Across age and type of violation, children were mostly objectivist in judging that only one party can be right, namely, the normative judge who evaluated an intended violation as wrong (moral violation) or impossible (physical violation).

However, we also varied the identity of the antinormative judge (either ingroup or extraterrestrial)—who made antithetical judgments—and found systematic differences in older children's metaethical judgment about moral disagreement similar to those found in adults (Sarkissian et al., 2011). The 9-year-olds expressed less objectivism (and were not objectivist in absolute terms) when the antinormative judge was an extraterrestrial individual than when the antinormative judge was an ingroup member. Thus, they were more likely to entertain the possibility that there are two "truths" (relativism) when the parties of the moral disagreement were deeply dissimilar in sociocultural and psychological respects (Harman, 2015). Moreover, 9-year-olds' enhanced metaethical relativism was independent of their alignment with one of the judges (their normative judgment) and, thus, cannot be explained by simple preferences (when making normative judgments in the experimental task) that might have influenced their subsequent metaethical judgment. The 4- and 6-year-olds, however, did not show the effect we found in 9-year-olds and were rather objectivist for both types of moral

disagreement, which might be reflective of a more general form of objectivist thinking. Finally, children's metaethical judgment was not affected by whether the children watched ingroup or extraterrestrial actors who intended to commit moral violations; thus, also in this regard, children's metaethical intuitions seem to be similar to those of adults (Sarkissian et al., 2011).

In contrast to children's developing metaethical judgment, their second-order judgment about the possibility of physical law violations was independent of the antinormative judge's identity across age. Moreover, 4-year-olds were more relativist for ingroup actors than for extraterrestrial actors (independent of judge identity), but 6- and 9-year-olds did not make a difference between the two types of actors. This effect was not expected and should be followed up by future work. It might be that 4-year-olds affiliated more strongly with the ingroup actors (than with the extraterrestrial actors) who intended to do something "magical" (e.g., creating an object out of thin air) and, thus, believed—or wanted to believe—that both judges could be right (Browne & Woolley, 2004), perhaps because it would be interesting to have ingroup members with "magical powers," whereas it may be less relevant for 4-year-olds to imagine the possibility of extraterrestrial actors with such "abilities." Finally, we used a Likert scale measure as an indicator of how certain children were about their second-order judgment. Independent of the type of violation, children estimated their objectivist second-order judgments as more possible with age, but for relativist second-order judgments, 4-year-olds tended to be more certain than older children. The increase in children's certainty about their objectivist attitudes with age could be related to children's increasing tendency to apply moral norms like principles and understand their underlying normative reasons, to prioritize moral (e.g., fairness) considerations over (conventional) group concerns, and to align their judgment and behavior more reliably than younger children (Elenbaas, Rizzo, Cooley, & Killen, 2016; Killen, Rutland, Abrams, Mulvey, & Hitti, 2013; Rutland & Killen, 2017; Schmidt, Svetlova, et al., 2016; Shaw & Olson, 2012; Smith, Blake, & Harris, 2013).

Prior research found that preschoolers and early school-aged children express objectivist attitudes in a variety of contexts. For instance, they judge that there is only one truth when others disagree about widely shared moral issues or physical laws (Heiphetz & Young, 2017; Wainryb et al., 2004), and they think that moral properties are independent of preferences (Nichols & Folds-Bennett, 2003). Moreover, 4- and 6-year-olds are less objectivist when facing disagreement about controversial moral beliefs (e.g., different types of physical harm; Heiphetz & Young, 2017). The current study extends these findings and suggests that by 9 years of age, children can express more relativism even in contexts of moral disagreement about uncontroversial, widely shared moral convictions (e.g., that it is wrong to harm others). More specifically, in our study, 9-year-olds' metaethical judgment showed similar properties as adults' metaethical judgment (Sarkissian et al., 2011), leading children to attribute less objectivity when the parties of a moral disagreement were deeply dissimilar than when they belonged to the same sociocultural group (as children).

Why did only 9-year-olds, but not younger children, attribute less objectivity when there was a large cultural–psychological distance between the parties of the moral disagreement? One possibility is that what allows children to make relativist metaethical judgments is "sociocultural perspective taking," a skill that develops between 6 and 11 years of age and is thought to be critical for taking into account others' group membership, ethnicity, social relationships, and preferences (Abrams et al., 2009; Rutland et al., 2010). Although 6-year-olds already have quite sophisticated perspective-taking skills (Perner & Roessler, 2012), they might nevertheless lack the ability to make sense of others' antithetical perspectives that are rooted in their sociocultural and psychological backgrounds. Another related possibility is that when children enter school, they have much more opportunity to witness and be part of different types of disagreements about (non)moral issues, often in intergroup contexts (Abrams, Rutland, Cameron, & Marques, 2003; Rutland et al., 2010), and these social experiences might be important for reasoning about the possibility that there might be more than one truth regarding moral issues (independent of whether one endorses another's position). A third contributing factor may be children's developing ability to consider that people may have "good" reasons for their judgment, that is, normative reasons that may justify their judgments (making it "true" from a person's perspective) as opposed to invalid non-normative reasons that do not justify judgments (e.g., circular or idiosyncratic reasons; Mercier et al., 2014; Schmidt, Svetlova, et al., 2016). Importantly, however, children at all ages were predominantly objectivist, so although sociocultural perspective

taking, social experiences, and understanding normative reasons may be necessary, they might not be sufficient for making relativist metaethical judgments (during both childhood and adulthood), in particular, regarding uncontroversial moral disagreements (with one party expressing a clearly antinormative opinion) as tested in our study.

The finding that children's second-order judgment about physical possibility disagreement was unaffected by the identity of the antinormative judge suggests that 9-year-olds—much like adults (Sarkissian et al., 2011)—did not apply enhanced relativism in the context of any disagreement between deeply dissimilar parties. Rather, the effect seems to apply to moral laws, which are (typically) nonarbitrary but still human-made (or human-relative) and at least in part constituted and alterable by human collective intentionality (Schmidt & Rakoczy, in press; Schmidt & Tomasello, 2012; Tomasello, 2015), but not to physical laws, which are unalterable and independent of individual or collective perspectives and opinion. Future work could assess whether this effect extends to other types of norms such as norms of instrumental rationality (using efficient means to reach one's ends) and prudential norms (pertaining to one's own welfare).

The current study used uncontroversial moral disagreements and a contrast (an antinormative extraterrestrial party vs. an antinormative ingroup party) that elicited the strongest attributions of metaethical relativism in adults (Sarkissian et al., 2011). An interesting question is whether school-aged children would still show the effect we found in the current study if cultural and psychological distances were reduced, for instance, if the antinormative party were an outgroup member who had different values (Sarkissian et al., 2011) or an ingroup member who had dramatically different preferences, beliefs, and values. Moreover, it could be that children's valenced attitudes toward another group modulate their tendency to express relativism; for instance, social categorization, biased (essentialist) beliefs, experimentally induced negative attitudes, or prejudice against other groups (Aboud, 2003; Bigler & Liben, 2006; Dunham et al., 2011; Haslam, Rothschild, & Ernst, 2002; Rhodes & Chalik, 2013; Rottman & Kelemen, 2012; Rutland, Cameron, Bennett, & Ferrell, 2005) may be related to stronger moral objectivism. Thus, future work may investigate whether children's attitudes toward other groups play a role in, or are orthogonal to, their metaethical judgments.

Furthermore, in the current study, we exposed children to individuals that were either ingroup or extraterrestrial. An important question for further examination is whether enhanced moral relativism can be found whenever children witness disagreeing parties who are (culturally) different from each other regardless of whether children themselves are culturally similar to at least one of the parties, as was the case in our study. That is, would children express enhanced moral relativism if they witnessed disagreement between individuals from two different (or the same) outgroups (or planets), both of whom are culturally different from the children?

Another interesting question for future research is whether older children than those tested in this study and adults would express more certainty about their objectivist second-order judgment than about their relativist second-order judgments and to what extent the nature of the disagreement modulates this certainty (e.g., controversial vs. uncontroversial moral disagreements; Heiphetz & Young, 2017).

It is widely assumed that children and adults incline toward moral objectivism (Nichols & Folds-Bennett, 2003; Shafer-Landau, 2003; Wainryb et al., 2004). This is indeed often the case, and children in our study largely confirmed this assumption. Nevertheless, adults' intuitions about metaethical objectivity may change when they reason about moral disagreement between deeply dissimilar parties, and the more distant the parties are in sociocultural and psychological terms, the more relativism adults attribute (Sarkissian et al., 2011). We found that this enhanced metaethical relativism—entertaining the possibility of more than one "truth"—for some forms of moral disagreement has its roots in middle childhood and is present by at least 9 years of age. Importantly, children did not apply such enhanced relativism for natural laws, that is, when facing dissimilar parties with conflicting views about the possibility of physical law violations. Hence, it may be that enhanced relativism based on considering others' perspectives, psychologies, and cultural backgrounds is restricted to the realm of human-made laws.

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References

Aboud, F. E. (2003). The formation of in-group favoritism and out-group prejudice in young children: Are they distinct attitudes? *Developmental Psychology, 39*, 48–60.

Abrams, D., Palmer, S. B., Rutland, A., Cameron, L., & Van de Vyver, J. (2014). Evaluations of and reasoning about normative and deviant ingroup and outgroup members: Development of the black sheep effect. *Developmental Psychology, 50*, 258–270.

Abrams, D., Rutland, A., Cameron, L., & Marques, J. (2003). The development of subjective group dynamics: When in-group bias gets specific. *British Journal of Developmental Psychology, 21*, 155–176.

Abrams, D., Rutland, A., Ferrell, J. M., & Pelletier, J. (2008). Children's judgments of disloyal and immoral peer behavior: Subjective group dynamics in minimal intergroup contexts. *Child Development, 79*, 444–461.

Abrams, D., Rutland, A., Pelletier, J., & Ferrell, J. M. (2009). Children's group nous: Understanding and applying peer exclusion within and between groups. *Child Development, 80*, 224–243.

Baayen, R. H. (2008). *Analyzing linguistic data: A practical introduction to statistics using R*. New York: Cambridge University Press.

Baillargeon, R., Li, J., Gertner, Y., & Wu, D. (2011). How do infants reason about physical events? In U. Goswami (Ed.), *The Wiley-Blackwell handbook of childhood cognitive development* (2nd ed., pp. 11–48). Malden, MA: Blackwell.

Bates, D., Maechler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software, 67*, 1–48.

Bigler, R. S., & Liben, L. S. (2006). A developmental intergroup theory of social stereotypes and prejudice. In R. V. Kail (Ed.). *Advances in child development and behavior* (Vol. 34, pp. 39–89). Greenwich, CT: JAI.

Browne, C. A., & Woolley, J. D. (2004). Preschoolers' magical explanations for violations of physical, social, and mental laws. *Journal of Cognition and Development, 5*, 239–260.

Cooley, S., & Killen, M. (2015). Children's evaluations of resource allocation in the context of group norms. *Developmental Psychology, 51*, 554–563.

Dahl, A., & Kim, L. (2014). Why is it bad to make a mess? Preschoolers' conceptions of pragmatic norms. *Cognitive Development, 32*, 12–22.

Dahl, A., & Tran, A. Q. (2016). Vocal tones influence young children's responses to prohibitions. *Journal of Experimental Child Psychology, 152*, 71–91.

Diesendruck, G., & Markson, L. (2011). Children's assumption of the conventionality of culture. *Child Development Perspectives, 5*, 189–195.

Dobson, A. J. (2002). *An introduction to generalized linear models* (2nd ed.). Boca Raton, FL: Chapman & Hall/CRC.

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

Elenbaas, L., Rizzo, M. T., Cooley, S., & Killen, M. (2016). Rectifying social inequalities in a resource allocation task. *Cognition, 155*, 176–187.

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

Forstmeier, W., & Schielzeth, H. (2011). Cryptic multiple hypotheses testing in linear models: Overestimated effect sizes and the winner's curse. *Behavioral Ecology and Sociobiology, 65*, 47–55.

Göckeritz, S., Schmidt, M. F. H., & Tomasello, M. (2014). Young children's creation and transmission of social norms. *Cognitive Development, 30*, 81–95.

Hamlin, J. K. (2013). Moral judgment and action in preverbal infants and toddlers: Evidence for an innate moral core. *Current Directions in Psychological Science, 22*, 186–193.

Harman, G. (1975). Moral relativism defended. *Philosophical Review, 84*, 3–22.

Harman, G. (2015). Moral relativism is moral realism. *Philosophical Studies, 172*, 855–863.

Haslam, N., Rothschild, L., & Ernst, D. (2002). Are essentialist beliefs associated with prejudice? *British Journal of Social Psychology, 41*, 87–100.

Heiphetz, L., & Young, L. L. (2017). Can only one person be right? The development of objectivism and social preferences regarding widely shared and controversial moral beliefs. *Cognition, 167*, 78–90. http://dx.doi.org/10.1016/j.cognition.2016.05.014.

Heiphetz, L., Spelke, E. S., Harris, P. L., & Banaji, M. R. (2013). The development of reasoning about beliefs: Fact, preference, and ideology. *Journal of Experimental Social Psychology, 49*, 559–565.

Kalish, C. W. (1998). Reasons and causes: Children's understanding of conformity to social rules and physical laws. *Child Development, 69*, 706–720.

Killen, M., & Smetana, J. G. (2015). Origins and development of morality. In R. M. Lerner (Ed.), *Handbook of child psychology and developmental science* (7th ed., Vol. 3, pp. 701–749). New York: Wiley–Blackwell.

Killen, M., Rutland, A., Abrams, D., Mulvey, K. L., & Hitti, A. (2013). Development of intra- and intergroup judgments in the context of moral and social-conventional norms. *Child Development, 84*, 1063–1080.

Komatsu, L. K., & Galotti, K. M. (1986). Children's reasoning about social, physical, and logical regularities: A look at two worlds. *Child Development, 57*, 413–420.

Lockhart, K. L., Abrahams, B., & Osherson, D. N. (1977). Children's understanding of uniformity in the environment. *Child Development, 48*, 1521–1531.
Mackie, J. L. (1977). *Ethics: Inventing right and wrong*. London: Pelican Books.
Mercier, H., Bernard, S., & Clément, F. (2014). Early sensitivity to arguments: How preschoolers weight circular arguments. *Journal of Experimental Child Psychology, 125*, 102–109.
Misch, A., Over, H., & Carpenter, M. (2014). Stick with your group: Young children's attitudes about group loyalty. *Journal of Experimental Child Psychology, 126*, 19–36.
Nagel, T. (1986). *The view from nowhere*. New York: Oxford University Press.
Nicholls, J. G., & Thorkildsen, T. A. (1988). Children's distinctions among matters of intellectual convention, logic, fact, and personal preference. *Child Development, 59*, 939–949.
Nichols, S., & Folds-Bennett, T. (2003). Are children moral objectivists? Children's judgments about moral and response-dependent properties. *Cognition, 90*, B23–B32.
Perner, J., & Roessler, J. (2012). From infants' to children's appreciation of belief. *Trends in Cognitive Sciences, 16*, 519–525.
Piaget, J. (1932). *The moral judgment of the child*. London: Routledge & Kegan Paul.
R Core Team. (2016). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing.
Rhodes, M., & Chalik, L. (2013). Social categories as markers of intrinsic interpersonal obligations. *Psychological Science, 24*, 999–1006.
Rottman, J., & Kelemen, D. (2012). Aliens behaving badly: Children's acquisition of novel purity-based morals. *Cognition, 124*, 356–360.
Roughley, N. (2004). Naturalism and expressivism: On the "natural" stuff of moral normativity and problems with its "naturalisation". In P. Schaber (Ed.), *Normativity and naturalism* (pp. 47–85). Frankfurt, Germany: Ontos.
Rutland, A., Cameron, L., Bennett, L., & Ferrell, J. M. (2005). Interracial contact and racial constancy: A multi-site study of racial intergroup bias in 3–5 year old Anglo-British children. *Journal of Applied Developmental Psychology, 26*, 699–713.
Rutland, A., & Killen, M. (2017). Fair resource allocation among children and adolescents: The role of group and developmental processes. *Child Development Perspectives, 11*, 56–62.
Rutland, A., Killen, M., & Abrams, D. (2010). A new social-cognitive developmental perspective on prejudice: The interplay between morality and group identity. *Perspectives on Psychological Science, 5*, 279–291.
Sarkissian, H., Park, J., Tien, D., Wright, J. C., & Knobe, J. (2011). Folk moral relativism. *Mind & Language, 26*, 482–505.
Schmidt, M. F. H., & Rakoczy, H. (in press). On the uniqueness of human normative attitudes. In K. Bayertz & N. Roughley (Eds.), *The normative animal? On the anthropological significance of social, moral, and linguistic norms*. Oxford, NY: Oxford University Press.
Schmidt, M. F. H., Butler, L. P., Heinz, J., & Tomasello, M. (2016). Young children see a single action and infer a social norm: Promiscuous normativity in 3-year-olds. *Psychological Science, 27*, 1360–1370.
Schmidt, M. F. H., Rakoczy, H., Mietzsch, T., & Tomasello, M. (2016). Young children understand the role of agreement in establishing arbitrary norms—But unanimity is key. *Child Development, 87*, 612–626.
Schmidt, M. F. H., Rakoczy, H., & Tomasello, M. (2012). Young children enforce social norms selectively depending on the violator's group affiliation. *Cognition, 124*, 325–333.
Schmidt, M. F. H., & Sommerville, J. A. (2011). Fairness expectations and altruistic sharing in 15-month-old human infants. *PLoS ONE, 6*(10), e23223.
Schmidt, M. F. H., Svetlova, M., Johe, J., & Tomasello, M. (2016). Children's developing understanding of legitimate reasons for allocating resources unequally. *Cognitive Development, 37*, 42–52. http://dx.doi.org/10.1016/j.cogdev.2015.11.001.
Schmidt, M. F. H., & Tomasello, M. (2012). Young children enforce social norms. *Current Directions in Psychological Science, 21*, 232–236.
Shafer-Landau, R. (2003). *Moral realism: A defence*. Oxford, UK: Clarendon.
Shaw, A., & Olson, K. R. (2012). Children discard a resource to avoid inequity. *Journal of Experimental Psychology: General, 141*, 382–395.
Smith, M. (1994). *The moral problem*. Oxford, UK: Blackwell.
Smith, C. E., Blake, P. R., & Harris, P. L. (2013). I should but I won't: Why young children endorse norms of fair sharing but do not follow them. *PLoS ONE, 8*(3), e59510.
Tomasello, M. (2015). *A natural history of human morality*. Cambridge, MA: Harvard University Press.
Turiel, E. (1983). *The development of social knowledge: Morality and convention*. Cambridge, UK: Cambridge University Press.
Turiel, E., & Dahl, A. (2016). The development of domains of moral and conventional norms, coordination in decision-making, and the implications of social opposition. In K. Bayertz & N. Roughley (Eds.), *The normative animal? On the anthropological significance of social, moral, and linguistic norms*. Oxford, UK: Oxford University Press.
Wainryb, C., Shaw, L. A., Langley, M., Cottam, K., & Lewis, R. (2004). Children's thinking about diversity of belief in the early school years: Judgments of relativism, tolerance, and disagreeing persons. *Child Development, 75*, 687–703.
Wainryb, C., Shaw, L. A., Laupa, M., & Smith, K. R. (2001). Children's, adolescents', and young adults' thinking about different types of disagreements. *Developmental Psychology, 37*, 373–386.
Wellman, H. M., Cross, D., & Watson, J. (2001). Meta-analysis of theory-of-mind development: The truth about false belief. *Child Development, 72*, 655–684.
Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition, 13*, 103–128.