



## **A social cognitive developmental perspective on moral judgment**

**Larisa Heiphetz\* and Liane Young**

Department of Psychology, Boston College, 140 Commonwealth Avenue, Chestnut Hill, MA 02467, USA

\*Corresponding author's e-mail address: larisa.heiphetz@bc.edu

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### **Abstract**

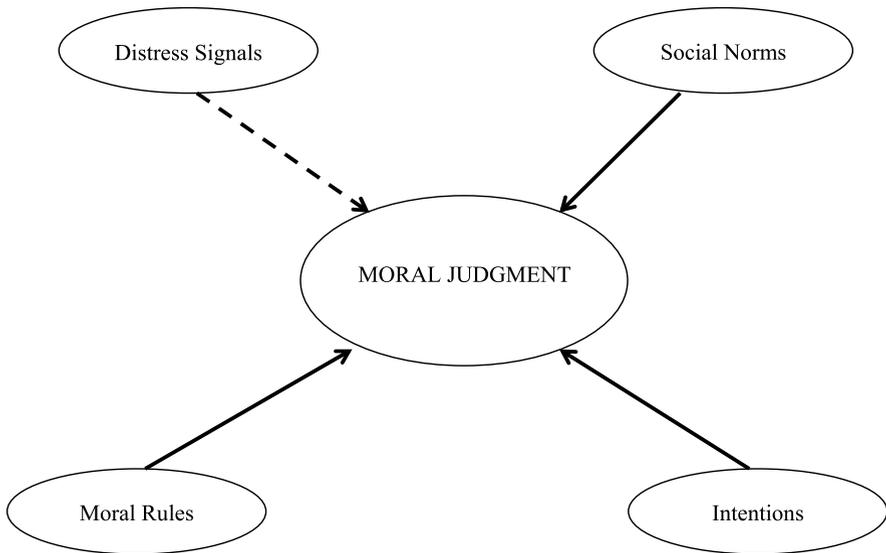
Moral judgment constitutes an important aspect of adults' social interactions. How do adults' moral judgments develop? We discuss work from cognitive and social psychology on adults' moral judgment, and we review developmental research to illuminate its origins. Work in these fields shows that adults make nuanced moral judgments based on a number of factors, including harm aversion, and that the origins of such judgments lie early in development. We begin by reviewing evidence showing that distress signals can cue moral judgments but are not necessary for moral judgment to occur. Next, we discuss findings demonstrating that both children and adults distinguish moral violations from violations of social norms, and we highlight the influence of both moral rules and social norms on moral judgment. We also discuss the influence of actors' intentions on moral judgment. Finally, we offer some closing thoughts on potential similarities between moral cognition and reasoning about other ideologies.

### **Keywords**

harm aversion, moral cognition, social cognitive development.

### **1. A social cognitive developmental perspective on moral judgment**

Moral judgment — reasoning about whether our own and others' actions are right or wrong — is a fundamental aspect of human cognition, informing a variety of social decisions. This paper investigates the origins of adults' moral judgments, focusing on moral judgments in the domain of harm. We begin by discussing distress signals that could indicate that harm has occurred and could therefore serve as strong elicitors of moral judgment. We



**Figure 1.** Four inputs to moral judgment. Note that though distress signals may influence moral judgment, such judgment can occur even in the absence of distress signals.

challenge the notion that such signals are required for moral judgments by discussing research demonstrating that moral judgment often occurs in their absence. We then turn to a discussion of ‘social domain theory’ and present evidence showing that children, like adults, distinguish moral violations from violations of social norms and that social norms can influence moral judgment. Next, we discuss research on ‘theory of mind’ showing that the moral judgments of neurotypical children and adults depend on information about others’ intentions (Figure 1). Finally, we discuss links between moral cognition and other domains.

## **2. The role of others’ distress in moral judgment**

Adults typically experience emotional aversion when asked to perform harmful actions such as discharging a gun in someone’s face (Cushman et al., 2012). Harm aversion is so common that it may appear, at first glance, to constitute the entirety of moral cognition. Though Graham and colleagues (2011) have identified additional moral domains, harm appears important across a broad spectrum of participants. Unlike other domains that vary in importance across demographic categories, harm influences cognition across

diverse cultures (Haidt, 2012), among liberals and conservatives (Graham et al., 2009), and even among some non-human primates (Sheskin & Santos, 2012). Indeed, some definitions of morality include only the domain of harm. For example, de Waal (this issue) defines morality as “helping or at least not hurting fellow human beings”.

For this review, we define harms as acts that injure others physically, emotionally, and/or materially. People might reason about different kinds of harm in different ways, yet a variety of actions (e.g., hitting, name-calling, stealing) can still be considered harmful. We use the term “harm aversion” to refer to moral condemnation of harmful actions. We focus on moral judgment rather than moral behavior because the bulk of current research in moral psychology focuses on the former. We argue that harm aversion plays a large role in moral judgment across development but that moral judgment depends on other factors as well. Specifically, both children and adults consider additional aspects of the situation, such as relevant social norms and information about an actor’s intentions. Although we focus on the developmental origins of moral judgment, much research has also investigated morality’s evolutionary origins (see Boehm, this issue; de Waal, this issue; Joyce, this issue).

One of the clearest ways to tell that harm has occurred is by observing victims’ expressions of pain. Researchers have argued that people have evolved to respond to distress signals by ceasing aggression. For example, building on the work of ethologists such as Eibl-Eibesfeldt (1970) and Lorenz (1966), psychologist James Blair proposed that people who are healthy have a violence inhibition mechanism (VIM) that is activated by cues such as crying (Blair, 1995; Blair & Morton, 1995). In other words, crying signals that harm is occurring and should be stopped. Blair argues that the VIM has a long evolutionary history; for example, dogs typically do not kill opponents who bare their throats in a fight, suggesting that some mechanisms have evolved to prevent death in the midst of conflict. Similarly, most people inhibit aggression in the face of others’ distress.

Investigations of infants have found evidence consistent with the idea that harm — and signals that harm has occurred — is aversive early in development. For instance, newborns cry in response to another infant’s cries (Sagi & Hoffman, 1976; Martin & Clark, 1982; see Ainsworth et al., 1978, for a discussion of the functions of infant crying). Suggestive as it is, such evidence is open to multiple interpretations. For instance, infants may experience empathy at another’s distress (regardless of whether or not

they find the distress itself aversive), or they may simply be irritated at a disturbance of the peace, or they may infer the presence of a threat in their own environment. Because infants are limited in the types of responses they can provide, it is difficult to disentangle these possibilities among this population. However, evidence from older toddlers can help identify the role these potential factors may play later in development.

One way to obtain such evidence is to observe older infants' and toddlers' provisions of comfort to those who have experienced harm. Such behavior is not specific to humans (Romero et al., 2010; Romero & de Waal, 2010), showing the long evolutionary history of comforting others. Work with human children has shown that neither 18-month-old nor 24-month-old infants comforted an adult who expressed physical pain after hurting her knee, though a minority of participants in both age groups exhibited self-soothing behaviors such as sucking their thumb or touching their own knee (Dunfield et al., 2011). Slightly older toddlers did show greater concern for victims of harm (Zahn-Waxler et al., 1992). Although some two-year-olds may be predisposed to respond to others' distress with empathy (Nichols et al., 2009), toddlers of this age do not always seek to redress those harms in ways typically used by older children and adults (e.g., comforting). It is not until the age of three that toddlers reliably comfort adults who have been harmed by others by sharing their own resources or making suggestions for how the adult can feel better. Toddlers of this age also attempt to prevent harms by telling agents performing negative behaviors to stop (Vaish et al., 2011).

At this point, it may be useful to consider what factors constitute the signatures or precursors of moral judgment for young children. How might we know when children make moral judgments? Self-soothing does not appear to be a strong cue, as this behavior can indicate self-oriented goals that do not concern morality. Comforting others may serve as a better cue in later toddlerhood, but these behaviors do not tend to emerge until around age three and may also indicate self-oriented goals. For example, older toddlers may comfort others to put an end to the distress signals that they find aversive.

Attempting to stop harmful behaviors, as three-year-old toddlers in Vaish and colleagues' (2011) work did, may serve as a stronger indication that toddlers are making a moral judgment. Such behavior (i.e., confronting the harm-doer) may lead to distress in the perpetrator of the harm and is therefore unlikely to serve a self-oriented goal of ending all distress cues. Rather,

three-year-old toddlers who attempt to stop harmful behaviors may be indicating that they find these behaviors morally objectionable. Yet other explanations are possible in this case as well, since even non-human animals can attempt to stop behaviors that harm others. For example, bears can aggress against those harming their cubs, and dogs can attempt to prevent harm from occurring to their owners. Such interventions can occur for a number of reasons, including kin selection and human training (e.g., dogs may be trained to attack people or animals who attempt to harm their owners), and may not always indicate moral judgment. Perhaps due to the difficulty of inferring moral judgment from behavior, much work in moral psychology has relied on asking direct questions (e.g., whether a particular behavior was okay or not okay).

### **3. Evidence that distress signals are not necessary for moral judgment**

The previous section describes instances in which young toddlers comfort the victim or confront the harm-doer, but recent work reveals instances when young toddlers and even infants perceive and respond to immoral actions in the absence of distress signals (see Hamlin, 2012, for a review). Thus, early moral cognition may be more nuanced than a simple formula in which “distress signals = harm = immorality”. Indeed, infants and young toddlers may have some understanding of morality despite their failure to exhibit this understanding through their behaviors. Individuals in these age groups may understand some behaviors to be immoral but fail to act on this understanding in ways typical among older individuals (e.g., comforting victims).

In one series of studies, Hamlin and colleagues (Hamlin et al., 2007, 2010; Hamlin & Wynn, 2011) showed infants displays featuring “helpers” (e.g., one character facilitating another character’s goal to climb up a hill) and “hinderers” (e.g., one character preventing another character from climbing up a hill). As indicated by a variety of measures, including reaching and looking time, infants preferred helpers to hinderers. This occurred even though the characters were portrayed by shapes lacking emotional expressions (e.g., distress). In a different study, two-year-old toddlers showed greater concern for an adult whose property had been destroyed or taken away even if the adult did not display any emotional distress (Vaish et al., 2009). These studies show that infants and toddlers are sensitive to harm even when victims have not indicated they have experienced harm or are in distress.

In summary, even infants appear to distinguish help from harm. Infants and toddlers do not require visible signs of distress to infer that harm has occurred; rather, they prefer helpers over hinderers even in the absence of distress signals. Though infants are unable to articulate their internal states, their preferences for helpers have been interpreted as a form of moral judgment (e.g., Hamlin, 2012). Below we discuss evidence that social norms and moral rules can also impact moral judgment in the absence of distress signals, providing further evidence that such signals are not necessary for moral judgment to occur.

#### **4. The role of norms and rules in moral judgment**

##### *4.1. The role of social norms in moral judgment*

Much of human behavior, like the behavior of some non-human animals (e.g., dogs: Bekoff, 2001; and monkeys: de Waal, 1993), is influenced by social norms. Toddlers seem to acquire an understanding of norms around three years of age. At this milestone, they begin to infer that actions are normative (that is, they “should be” done a particular way) when an adult simply demonstrates the action with familiarity, even in the absence of pedagogical or language cues (Schmidt et al., 2011). Furthermore, three-year-old toddlers protest when actors violate context-dependent norms such as the rules of a particular game (Rakoczy, 2008; Rakoczy et al., 2008, 2009; Wyman et al., 2009). Three-year-old toddlers accept norms concerning sharing, though they fail to follow these norms themselves. For example, they report that they and others should share stickers equally, though children do not typically distribute valued resources equally until they reach approximately 7 years of age (Smith et al., 2013). Three- and four-year-olds also tattled to authority figures when their siblings and classroom peers violate rules and norms (Ross & den Bak-Lammers, 1998); in one line of work, such tattling represented the majority of children’s statements about their peers to third parties (Ingram & Bering, 2010). Toddlers who tattled on siblings tended to emphasize harmful actions such as physical aggression (den Bak & Ross, 1996), suggesting that even toddlers may view rules against harm as especially important, or at least recognize that their parents may take this view.

In many instances, toddlers distinguish social norms from moral rules, which are proscriptions against behaviors that result in negative outcomes towards others (Lockhart et al., 1977; Nucci, 1981; Smetana, 1981; Turiel,

1983; Smetana et al., 1993; for a more thorough review of children's differentiation of social norms from moral rules, see Killen & Rizzo, this issue). For example, three-year-old toddlers enforce moral rules equally for in- and out-group members but enforce conventional norms more for in-group members (Schmidt et al., 2012). In Schmidt and colleagues' study, toddlers met puppets speaking in a native or foreign accent and then saw these puppets violate either moral rules (e.g., damage someone's property) or conventional norms (e.g., play a game the "wrong" way). Toddlers protested equally when actors violated moral rules regardless of group membership but protested more when in-group rather than out-group actors violated conventional norms, demonstrating an understanding that group membership likely exerts a stronger influence on conventional norms.

Although toddlers distinguish conventional social norms from moral rules, they also use information about the former to inform their evaluations of the latter. For example, in one study (Hepach et al., 2013), three-year-old toddlers played a drawing game with two experimenters. One experimenter showed the second experimenter how to cut a piece of paper in one of three ways: (1) cutting a blank piece of paper, (2) cutting a small section of the second experimenter's paper without destroying the drawing on the paper made by the second experimenter, or (3) cutting across the entire drawing made by the second experimenter. The second experimenter then displayed emotional distress. Three-year-old toddlers displayed concern for the second experimenter only when she appeared justifiably upset, i.e., when her picture had been destroyed in the third condition. Specifically, children checked up on the experimenter and helped her with a subsequent task. Children responded with similar levels of concern when they were not privy to information about why the experimenter was upset; that is, without specific evidence of unjustified distress, children assumed the response to be justified. However, when the experimenter responded with strong distress to a minor harm (e.g., when the paper was cut, but the drawing was left intact), children showed significantly less sympathy. That is, in a situation where "victims" expressed great distress in response to a socially normative action (e.g., cutting a small piece of paper), toddlers appeared to view the distress as unjustified. Preschoolers with autism showed this same "crybaby effect", by sympathizing more in the case of justified distress; this aspect of moral cognition may thus be spared despite other social-cognitive impairments among individuals with autism (Leslie et al., 2006).

#### 4.2. *The role of rules in moral judgment*

In addition to social norms, which are perceived to vary across contexts (Smetana, 1981; Turiel, 1983; Smetana et al., 1993), other more broadly applicable rules can also govern moral judgment. In fact, both Piaget (1932) and Kohlberg (1969) proposed that during the early stages of moral development, moral judgment is primarily rule-based. For example, a child whose moral reasoning is at the pre-conventional stage (in Kohlberg's terminology) might claim that it is wrong for a man to steal a drug that will save his wife's life because stealing is against the rules.

More recent work has investigated the importance of rules to older children and adults. In one study (Lahat et al., 2012), for example, 8–10-year-old children, 12–13-year-old adolescents, and undergraduates read identical stories with endings slightly altered to create violations of moral rules or violations of social norms. For example, in one story, Alice saw her sister's pajamas in her closet. Alice then decided to shred them (moral violation) or wear them to school (conventional violation). Participants were asked to press one key as quickly as possible if they thought the behavior was "OK" and a different key if they thought the behavior was "NOT OK". During half of the trials, participants were instructed to imagine that there was no rule against the behavior (rule removed condition). During the other half, participants were given no specific instructions and were assumed to operate as though a rule prohibited the violations (rule assumed condition). In the rule assumed condition, participants of all ages judged moral violations to be wrong more quickly than they judged conventional violations to be wrong; in the rule removed condition, participants responded equally quickly across these conditions. This suggests that judgments concerning conventional violations require additional cognitive processing and that the presence of rules can alter the ease with which people make moral judgments.

Additionally, adults responded more quickly that moral violations were wrong in the rule assumed condition. Lahat et al. (2012) offer two explanations for this finding. First, adults may have been surprised by the lack of rules against moral violations. Second, adults may have considered the context in which moral violations took place. This latter explanation is at odds with social domain theory (Smetana, 2006), which argues that context influences only judgments concerning conventional violations, not judgments concerning moral violations. However, this interpretation is in line with additional research drawing on the philosophy literature.

Specifically, Nichols & Mallon (2006) drew on the famous trolley problem to investigate the role of rules in moral judgment. Two versions of this dilemma exist. In the ‘bystander’ case, individuals are asked to imagine a person standing by a trolley track. This bystander sees five people working on the tracks and also notices a train heading directly toward them. If the bystander does nothing, the train will kill the people on the track. However, the bystander has the option to flip a switch, causing the train to switch to another track and kill a sole individual there. Participants are typically asked whether it is morally acceptable to flip the switch. The ‘footbridge’ case presents a similar dilemma, with one twist: now there is no switch to pull. Rather, the individual observing the train has the option of pushing another individual (typically a large stranger) in front of the train. This action would kill the stranger but save the lives of the people working on the track. In both cases, claiming that it is acceptable to sacrifice one life to save five reflects ‘utilitarianism’. Although the utilitarian option ultimately results in more saved lives, several philosophers have asserted that it is not always the moral option (Thomson, 1976; Quinn, 1989), and this non-utilitarian intuition has been strengthened by presenting the dilemma in terms of the trolley problem rather than in abstract terms.

In recent empirical work, adults made different judgments in the bystander scenario and the footbridge scenario. Healthy adults are more likely to endorse the utilitarian option in the bystander scenario than in the footbridge scenario (Greene et al., 2001; Shallow et al., 2011; Côté et al., 2013). This difference may reflect an emotion-based aversion to harming others via direct physical contact (Greene et al., 2001). Most people hold an intuition that harming others is wrong, and they may search for cognitive reasons to justify this emotional intuition when presented with the footbridge scenario (Hume, 1739; Haidt, 2001, 2012).

To investigate the role of context on moral judgments, Nichols & Mallon (2006) altered the basic bystander and footbridge scenarios by presenting participants with stories featuring “victims” that were teacups rather than people. These scenarios included the same cost: benefit ratios as traditional trolley dilemmas (e.g., sacrificing five to save one); however, these ratios are applied to inanimate objects. In both scenarios, a mother tells her child not to break any teacups and then leaves. A situation then occurs where a toy vehicle is likely to run over multiple teacups. The child saves multiple teacups either by diverting the train away from multiple cups and causing it

to crush one solitary cup (“bystander” scenario) or by throwing one teacup at the vehicle and breaking that one cup in the process (“footbridge” scenario).

Mimicking results from research using similar scenarios with people rather than teacups, participants were more likely to say that the child broke a rule in the “footbridge” scenario. However, moral judgments differed depending on whether the scenario was about people or cups. When the scenario was about people, the majority of participants reasoned that it was not okay to violate the rule, but when the scenario was about teacups, the majority of participants reasoned that violating the rule was acceptable (Nichols & Mallon, 2006). The authors interpreted these findings to mean that moral judgments in the case of people are guided by a moral rule against harm (“do not kill innocent people”) that does not apply to the teacup case. That is, Nichols & Mallon (2006) interpreted their data in a way consistent with one potential explanation of the data obtained by Lahat et al. (2012), arguing that context (people vs. teacups) may influence moral judgments.

In summary, individuals do not respond inflexibly to distress signals when making moral judgments. Rather, children and adults consider the context of the display as well as relevant rules and social norms governing appropriate responses. Tears alone do not mean that harm has occurred or that moral judgment is required.

## **5. The role of others’ intent in moral judgment**

An additional role for context in moral judgment concerns the influence of intent. One interpretation that individuals may make of distress signals is the following: distress signals in a victim do not necessarily indicate that another person intended to harm the victim. That is, person A may have harmed person B, and an observer may interpret this event differently depending on whether the harm was intentional or accidental. Just as participants may reason that distress in response to socially normative behaviors does not necessarily mean that harm has occurred, participants may also use information about actors’ intentions to determine the extent to which their actions, including harmful actions, are morally wrong (for evidence that reasoning about intent has ancient evolutionary origins and that this ability can be found among non-human primates, see Call et al., 2004; Phillips et al., 2009).

The study of intent has a rich history in psychology and related fields (see also the discussion in Killen & Rizzo, 2014, this issue). For example, Piaget

(1932) showed that young children claimed that it was worse to accidentally make a large ink stain than to intentionally make a small one, showing that they prioritized outcomes over intentions. Only between the ages of 6 and 10 years did children in Piaget's work begin to prioritize information about intent. Below, we discuss more recent work suggesting that intent may begin to influence moral judgment earlier in development than previously thought.

### *5.1. The development of 'theory of mind'*

Moral judgments require people to be able to reason about the contents of others' minds, including people's intentions and beliefs. The ability to do so is called 'theory of mind'. A standard test of theory of mind — the false belief task — asks children to distinguish their own knowledge from the knowledge of another person. In a classic version of the task, a central character (Sally) places an object in a particular location and then leaves the room, at which point another character (Anne) surreptitiously moves the hidden object to a different location. The experimenter then asks participants where Sally will look for the object when she returns to the room. Toddlers younger than four years old typically respond that Sally will search in the object's current location, despite the fact that Sally had no way of knowing that the object was moved (see Wellman et al., 2001, for a review). Researchers have used such findings to argue that infants and young toddlers do not represent others' minds as different from their own; that is, before reaching four years old, children think that everyone has access to the same knowledge (e.g., Wimmer & Perner, 1983). However, more recent findings (see Baillargeon et al., 2010, for a review) indicate that false belief understanding may emerge in the second year of life, suggesting that even infants may represent others' beliefs, even if those beliefs differ from their own (for a discussion of theory of mind among non-human primates, see Premack & Woodruff, 1978; Heyes, 1998; de Waal & Ferrari, 2012).

### *5.2. The development of intent-based moral judgments*

Supporting the claim made by Baillargeon and colleagues that even infants can reason about others' mental states, a number of experiments have shown that, beginning in infancy, individuals' responses to and moral evaluations of actors depend on the actor's intent. One line of work (Dahl et al., in press) suggests that preferential helping based on intent emerges gradually over the first two years of life. In this study, 17- and 22-month-old infants

had the opportunity to help actors who had previously acted pro-socially or anti-socially. Infants helped both actors equally. Two-year-old toddlers preferentially helped the pro-social actor when given a choice between helping the two actors but were willing to help the anti-social actors when the pro-social actor was not present.

In another line of work (Hamlin, 2013), 8-month-old infants preferred characters who intended but failed to help others over characters who intended but failed to harm others. That is, infants preferred characters with good intentions rather than characters associated with good outcomes. Furthermore, infants failed to distinguish between characters who intended but failed to help and characters who helped successfully. Older (21-month-old) infants showed their preferences in their behaviors; they selectively helped actors who, in a previous interaction, intended to provide a toy, regardless of whether the actors succeeded or failed in carrying out their goal to help (Dunfield & Kuhlmeier, 2010). Three-year-old toddlers provided less help to actors who had performed harmful actions in the past or who demonstrated that they had harmful intentions, even in the absence of actual harms (Vaish et al., 2010). And, like adults, four-year-olds judged intentional harms to be worse than accidental harms and showed greater emotional arousal, as measured by pupil dilation, to scenarios depicting intentional rather than accidental harm (Decety et al., 2012).

Intent-based moral judgment continues to develop between the ages of four and eight years (Cushman et al., 2013). Cushman and colleagues used evidence from young children to argue for a two-process model of moral judgment (see also Cushman, 2008, for evidence supporting a similar model in adults). In their study, children heard stories concerning attempted harm (e.g., a boy tried to push over another child but tripped on a rock instead) and unintentional harm (e.g., a boy tripped over a rock while running and accidentally pushed someone over in the process). Participants then delivered moral judgments (e.g., “Should [the character] be punished?”, “Is [the character] a bad, naughty boy?”). When collapsing across stories and dependent measures, the researchers found that with increasing age, children became increasingly likely to condemn attempted harm despite the fact that the outcome was benign. Older children were also less likely than younger children to condemn accidental harm. These results show an age-related shift to greater reliance on intent rather than outcome when making moral judgments of others’ actions.

Additional effects found in this study shed light on the influence of intent-based moral judgment on judgments concerning punishment (Cushman et al., 2013). Specifically, older children relied more on information about intent when judging the character's 'naughtiness', compared to when judging the extent to which the character should be 'punished'. When responding to stories involving accidental harm, intent-based naughtiness judgments mediated the effect of age on intent-based punishment judgments, but the reverse was not the case. Furthermore, initial intent-based naughtiness judgments led to greater subsequent intent-based punishment judgments, but the reverse did not occur. These findings suggest that intent-based naughtiness judgments constrained intent-based punishment judgments. Furthermore, Cushman et al. (2013) use these results to argue in favor of the idea that the developmental shift from outcome-based reasoning to intent-based reasoning relies on conceptual changes within the moral domain rather than gains in more domain-general abilities such as executive function and theory of mind.

Other work, however, has investigated the ways in which the development of theory of mind abilities may influence the development of moral cognition and vice versa. Findings from this literature, in combination with Cushman et al.'s (2013) research, suggest that changes in children's moral judgments may depend both on conceptual change within the domain of morality and on the development of more domain-general abilities. For example, in one study (Killen et al., 2011), 3.5–7.5-year-old children who did not exhibit full competence on a task measuring morally-relevant theory of mind (MoTOM) were more likely to attribute negative intentions to a peer who accidentally harmed another than did participants who answered all MoTOM questions correctly. In a follow-up study, participants who did not pass the MoTOM task reported that it was more acceptable to punish the "accidental transgressor" than did participants who answered all MoTOM questions correctly. These studies point to a relationship between developing moral judgments and the emergence of theory of mind.

Additional evidence suggests that moral judgments may also play a role in influencing theory of mind. For example, Leslie and colleagues (2006) found that preschoolers were more likely to say that a person intentionally caused a negative rather than a positive outcome, despite the fact that both outcomes were presented as unintended. Similar results have been found among adults (Knobe, 2005). The reverse is also true, as demonstrated by evidence showing that moral cognition recruits brain regions that support

mental state processing, such as the right temporoparietal junction (RTPJ) and medial prefrontal cortex (MPFC; Kedia et al., 2008; Young & Saxe, 2009). These data suggest that healthy adults reason about others' mental states when delivering moral judgments. Additional neuroscience evidence points to the importance of neurodevelopment for moral judgment (Decety & Howard, 2013). For example, in one study (Decety & Michalska, 2010), 7–40-year-old participants viewed scenarios where individuals experienced either intentional or accidental physical harm. An age-related change was observed in ventro-medial pre-frontal cortex (VMPFC) activation. Whereas younger participants demonstrated activation in the medial VMPFC when exposed to intentional harm, the locus of activation moved to the lateral VMPFC as participants aged. This demonstrates a shift from a more visceral response (typically associated with the medial VMPFC) to a more cognitive response integrating information about mental and affective states (typically associated with the lateral VMPFC). Thus, neurodevelopmental changes may underlie some changes in moral cognition across development.

### *5.3. Intent-based moral judgments in adulthood*

Intent plays such an important role in moral judgment that, in some cases, participants prioritize information about intent rather than outcome when evaluating actions. For example, in one set of studies (Cushman, 2008), adults read vignettes that manipulated the actor's desire (e.g., the actor wanted or did not want to burn another person's hand), the actor's belief (e.g., the actor thought or did not think that her action would burn another person's hand), and the outcome (e.g., the other person's hand was burned or not burned). Adults then judged how morally wrong the actor's behavior was, how much the actor was to blame for the outcome, and how much the actor should be punished. When judging moral wrongness, adults prioritized information about the actor's intent. By contrast, when assessing blame and punishment, adults also considered the harmfulness of the outcome.

Intent appears to be especially important in adults' judgments of harmful — as opposed to purity-violating — actions (Young & Saxe, 2011). Young and Saxe presented participants with vignettes that varied in two ways. First, some vignettes described harmful actions (e.g., one person poisoned another), while others described purity-violating actions that did not cause harm (e.g., two long-lost siblings had consensual sex). Second, within each condition, some vignettes described actors who behaved intentionally

or accidentally (e.g., the person knew or did not know she was poisoning another person's food; sexual partners knew or did not know they were siblings). Participants judged intentional harmful actions as well as intentional purity-violating actions to be wrong, showing that adults make moral judgments even in the absence of harm. Two additional results of particular relevance to the role of intent in moral judgment emerged. First, participants judged harmful actions to be morally worse when committed intentionally versus accidentally, showing that most adults care about an actor's intent and not just the action's outcome when determining moral wrongness. Second, accidental harms were judged less morally wrong than accidental purity violations. Adults did not rely on intent indiscriminately when making moral judgments; rather, information about intent mattered more for judgments concerning harm than for judgments concerning purity. These results may have occurred because harmful actions usually impact a victim, while purity-violating actions do not need to impact anyone other than the perpetrators (see also Chakroff et al., in press).

In summary, moral judgment does not depend solely on harmful outcomes. Rather, people demonstrate a sophisticated ability to consider actors' intentions as well as outcomes for moral judgment. Additionally, individuals deliver moral judgments even in cases (e.g., purity violations) where no victims appear to be harmed (see also Haidt, 2001, 2012; Graham et al., 2011; Koleva et al., 2012). As children mature, they become better able to process mental state information for moral judgment.

## **6. Connections between moral cognition and other domains**

We have already discussed work showing that young children and adults distinguish moral rules from other types of norms, such as norms governing social convention. In addition to distinguishing morality from social convention, children and adults also distinguish morality from mere preference. Adults place morality in an intermediate position between beliefs about facts on the one hand and preferences on the other; the logic is that morality is similar to objective fact in some ways and similar to subjective preference in other ways (Goodwin & Darley, 2008). Preschoolers also treat moral properties like "good" and "bad" as more objective than properties that depend more on preference, such as "fun" and "icky" (Nichols & Folds-Bennett, 2003). Of course, moral beliefs cannot be verified in the same way that facts

can be identified as true or false. For example, the factual statement “George Washington was the first president of the United States” can be verified using the proper materials (e.g., textbooks, original documents) and skills (e.g., reading). By contrast, the moral belief that “hitting is wrong” cannot be verified in the same way.

A discussion of moral objectivity is beyond the scope of this article (for further discussion, see Nichols, 2004; Wainryb et al., 2004; Sarkissian et al., 2011; Goodwin & Darley, 2012; Young & Durwin, 2013), but it is important to recognize that moral beliefs are not the only beliefs that occupy this intermediate space. Children between five and ten years old, as well as adults, place religious beliefs in the same intermediate space (Heiphetz et al., 2013). Adolescents and adults treat political beliefs similarly, positioning them between factual and preference-based beliefs (Heiphetz et al., data not shown). Although children and adults distinguish morality from some types of beliefs, such as those concerning preference and social convention, they may group morality with other ideologies, including religion and politics. These apparently different domains — morality, religion, and politics — may share common psychological processes. For example, all concern ideologies — shared beliefs about how the world is and, importantly, how the world ought to be (Jost et al., 2009). Future work should investigate the cognitive signatures of ideological thought.

## **7. Conclusion**

From infancy to adulthood, people make sophisticated moral judgments that rely on a number of inputs, such as distress signals, social norms, moral rules, and information about an actor’s intent. First, we discussed evidence indicating that distress signals can indicate that harm has occurred. Second, we presented work showing that moral judgment often occurs in the absence of distress signals. Third, we presented research showing that children and adults alike distinguish harmful actions from violations of social convention and that social norms as well as moral rules can influence moral judgments. In addition, this body of research shows that even toddlers may withhold moral judgment in the presence of distress signals if they perceive the distress to occur as a result of a socially normative (rather than harmful) behavior. Fourth, children and adults alike use information about others’ intentions to inform their moral judgments. Finally, although individuals also distinguish

moral beliefs from beliefs about facts and preferences, they appear to group morality with other ideologies such as political and religious beliefs. Exploring further connections between moral cognition and other domains remains a fruitful avenue for future research.

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